ENGINEERING NEWS-RECORD

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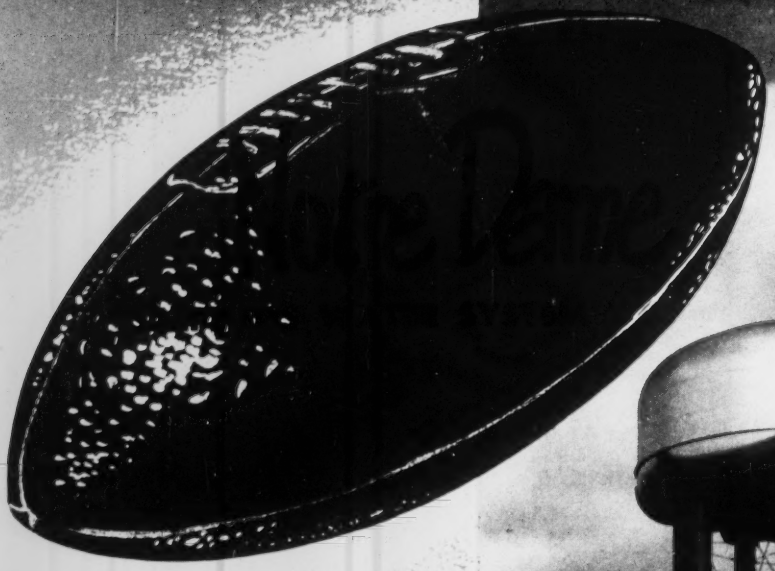
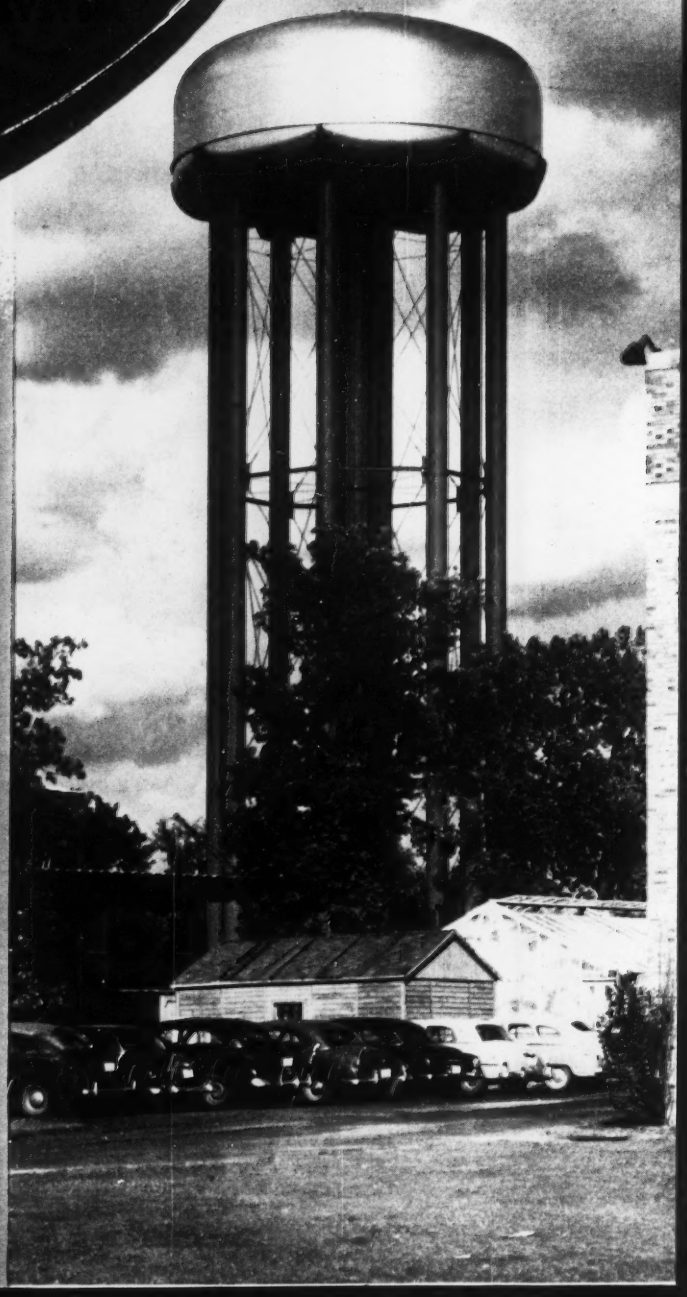


WITH NEW

HORTON

ELEVATED WATER TANK



The University of Notre Dame formerly obtained its drinking water from deep wells while water for general service was pumped from a nearby lake. This arrangement required the maintenance of two separate distribution systems and also posed a threat to health because of the chance that untreated lake water from lavatory connections might be used for brushing teeth or drinking purposes.

By installing a 500,000-gal. Horton elevated tank and also increasing its use of wells, the University eliminated the need for lake water. In addition to simpler operation and positive sanitation, the new system provides lower pumping costs and an adequate reserve of water for peak loads and fire protection.

Horton elevated tanks for better water service are built in standard capacities from 15,000 to 3,000,000 gals. Write our nearest office for estimates or quotations on an elevated tank to improve your water system.

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a City is Born!

HD-20 push-loads one of the Doelger fleet of six *Motor Scrapers* as another rolls toward fill. Hydraulic torque converter automatically matches tractor's speed to scraper's... provides faster loading, maximum production.

Allis-Chalmers earth-moving equipment helps build $125 million West Coast project

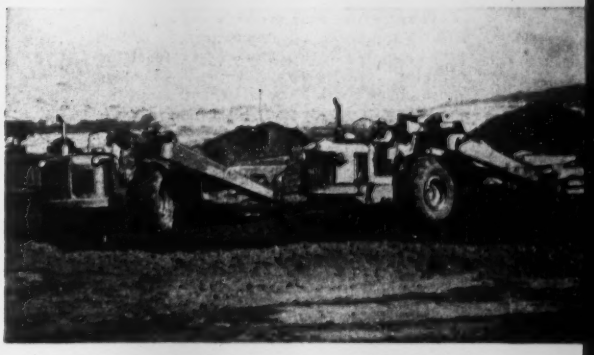
Just south of San Francisco, Henry Doelger Builder, Inc. is creating Westlake, a city that will house 35,000 persons in 8,000 houses and 2,100 apartments.

Recently, Doelger increased his earth-moving fleet with three new Allis-Chalmers TS-300 *Motor Scrapers* and two new HD-20 torque converter tractors. His reasons:

The TS-300 and HD-20 are a matched dirt-moving "package" that cuts cost per yard by cutting time per yard With hydraulic torque converter drive, the big 41,000-lb HD-20 synchronizes its speed to scraper speed automatically for quick, easy loading. And with 22.5 mph speeds and 20 engine hp. behind every yard of struck capacity, the TS-300 gets the dirt on the fill fast Forced, positive ejection bulldozes the dirt out clean "on the run."

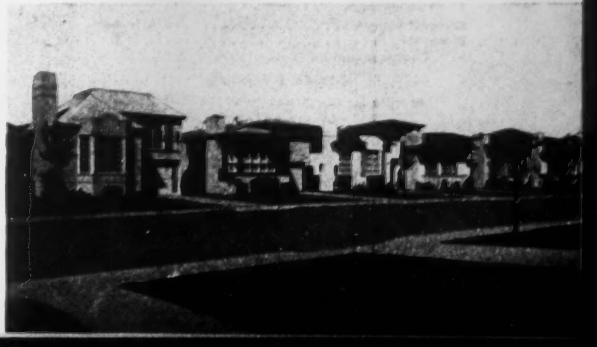
These advantages, teamed up with built-in ruggedness and ease of servicing, give the high-production, low-maintenance performance necessary on this big job.

Find out, as Doelger and many other users have, how these machines can move *your* dirt cheaper. Your Allis-Chalmers dealer can give you all the facts. See him soon.



Here, with capacity 18-yard heaped loads, are the oldest and newest *Motor Scrapers* on the job. The veteran (at right in photo) has operated continuously for 7 years.

Since May, 1949, Doelger has built 2,100 homes, 1,000 apartments, a large shopping district, a park and playgrounds, at Westlake. There are over 500 exterior house designs. Prices range from $13,650 to $19,950.



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Number of copies of this issue printed: 58,909

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Publisher

July 23, 1953 ENGINEERING NEWS-RECORD Vol. 151, No. 4

Member ABC and ABP

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. **Publication Office, 99-129 North Broadway, Albany 1, N. Y.**

Executive, Editorial and Advertising Offices: McGraw Hill Building, 330 W. 42nd St., New York 36, N. Y. Curtis W. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Vice-President and Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Engineering News-Record—Subscription Service, 99-129 North Broadway, Albany 1, N. Y., or 330 W. 42nd St., New York 36, N. Y. Allow one month for change of address.

Subscriptions are solicited only from persons with an identifiable commercial or professional interest in construction and building. Position and company connection must be indicated on subscription orders.

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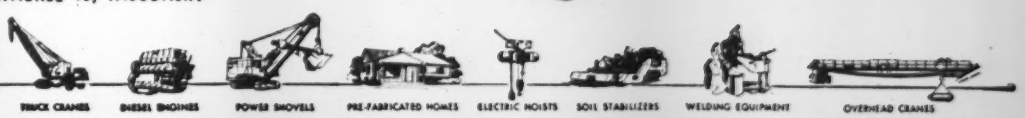
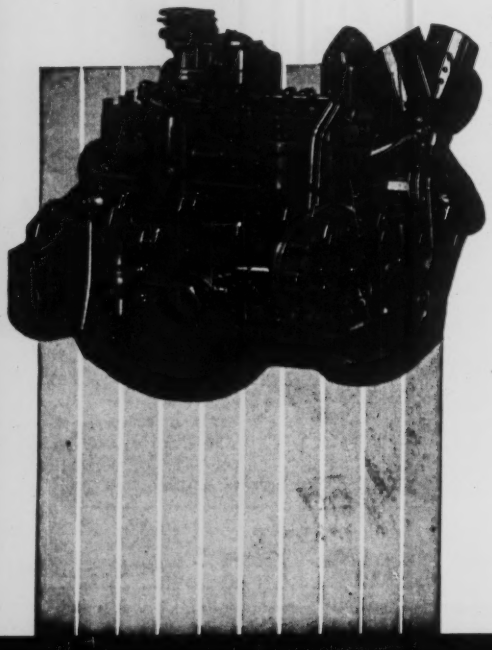


TRUCK CRANES · DIESEL ENGINES · POWER SHOVELS · PRE-FABRICATED HOMES · ELECTRIC HOISTS · SOIL STABILIZERS · WELDING EQUIPMENT · OVERHEAD CRANES

Photo courtesy Chain Belt Company, Milwaukee, Wisconsin

Chrysler Power and gýrol Fluid Coupling help remove work and jerk from transit-mixing . . .



Chrysler Industrial Power pumps water, digs ditches, harvests grain, cuts lumber and . . . mixes cement. And very well too. Construction people claim the mixing action of this seven-yard truck mixer is extremely efficient and its charging and discharging speeds excellent, even with coarse mix.

From its position at the rear of the Rex Roto-Mixer, the 230 cubic inch displacement Model 6 Chrysler Industrial Engine supplies ample power for the mixing mechanism. At the same time, Chrysler gýrol Fluid Coupling protects mixer, engine, clutch and transmission from the life-shortening wear imposed by the combination of heavy payloads, sudden starts and stops. Prevents stalling too.

This is simply Chrysler Industrial Power doing a specialized job *better* because the engine was selected and equipped to meet the requirements of this particular job. The manufacturer—like every other—chose from a great number of Chrysler options. Among them: gasoline, natural gas or liquid-propane burning carburetors, 3, 4 or 5 speed transmission, standard or gear-driven front ends (with magneto or hydraulic pump drive), twelve or twenty-four volt electrical systems.

Chrysler offers ten power-proved industrial engines for your consideration. They are not expensive because Chrysler production-line methods allow us to mass-produce custom-built engines and sell them at mass-production prices. See the nearest Chrysler Industrial Engine Dealer for complete details, or write: ***Dept. 77, Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.***

CHRYSLER
Industrial Engines

HORSEPOWER WITH A PEDIGREE

Plan for Safety at Danger Points

with Safety-Beam

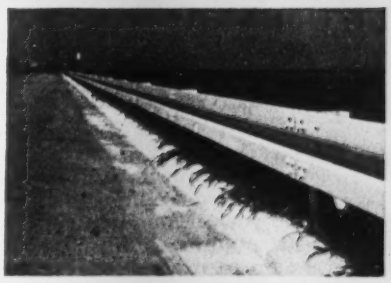
Rear and front views of Safety-Beam installed along secondary road in Pennsylvania.

Wherever danger lurks along a highway—at sharp turns, embankments, bridge approaches—you can provide extra protection for motorists with Bethlehem Safety-Beam Guard Rail.

Sturdy Safety-Beam sections lock together in a continuous beam ready to meet the thrusts of runaway vehicles. These heavy sections of steel plate are bolted together on steel, wood or concrete posts to form a continuous impact-absorbing beam. When a vehicle strikes Safety-Beam, impact is absorbed by several adjacent posts, making it next to impossible to crash through the rail.

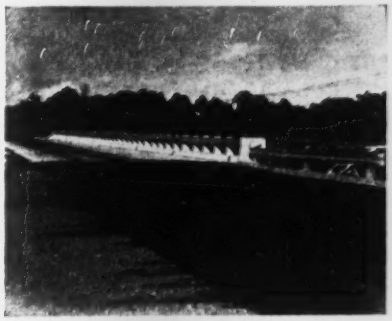
Safety-Beam is clearly visible at all times. It's easy to install, too, even by unskilled labor. No end anchor rods, special tools or complicated adjustments are required.

For more information about Bethlehem Safety-Beam Guard Rail—and other road-steel products—call the nearest Bethlehem sales office, or write to us at Bethlehem, Pa.



Traffic using approach to Chesapeake Bay Bridge, Maryland, has Safety-Beam protection.

Safety-Beam Guard Rail protects motorists at this small bridge on Route 79, in Arkansas.



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Pitt Chem Tar Base Coatings are up to 10 times as thick as ordinary paints. They are economical and easy to apply. What's more, Pitt Chem Coatings are made from coal tar pitch—one of the most impervious materials ever employed to stop corrosion—and produced in a plant designed exclusively for the manufacture of coal tar coatings. If *you* have a corrosion problem involving steel, masonry, brick or stone surfaces, call on Pittsburgh . . . or see our catalog in Sweet's Plant Engineering File.

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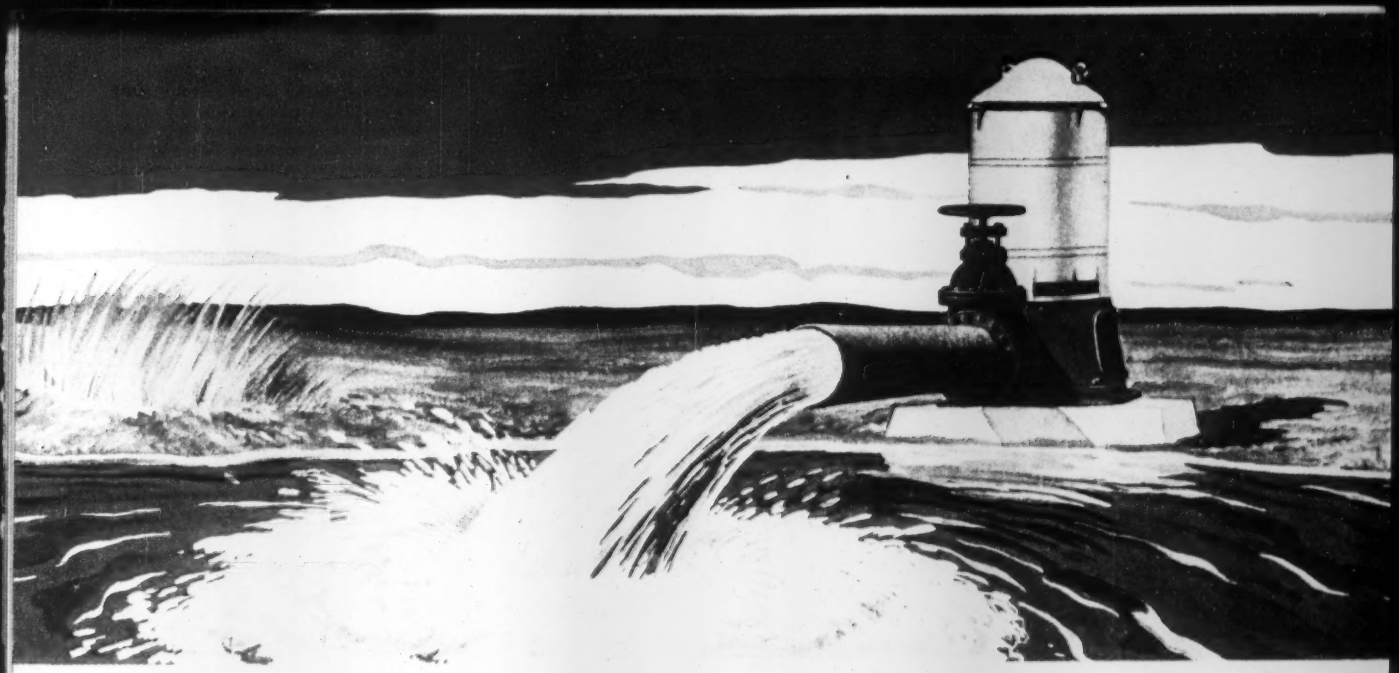

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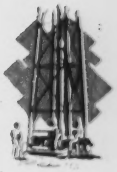

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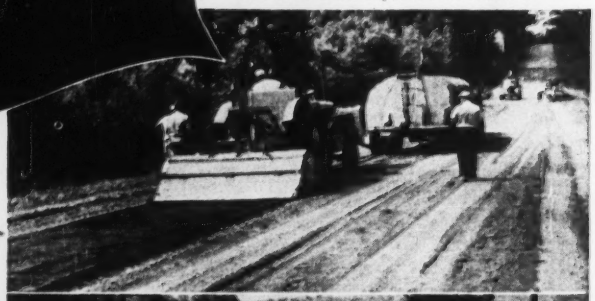
(Below) TRAV-L-PLANT applying 3.17 gal. per sq. yd. in one pass at 50 ft. per minute in sand-asphalt construction.



the SEAMAN SELF-PROPELLED TRAV-L-PLANT

SEAMAN TRAV-L-PLANT mixing bituminous binder for expressway shoulder. All Seaman Mixers operate up to slab leaving no intervening unmixed material. Bitumen is mixed instantly and thoroughly because TRAV-L-PLANT spray bar applies binder directly into mixing chamber.

SEAMAN Self-Propelled MIXER follows asphalt distributor closely to prevent binder migration or surface run-off, important feature of all SEAMAN MIXERS is thorough blending of aggregates and fines to prevent aggregate segregation.

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the SEAMAN SELF-PROPELLED PULVI-MIXER

The SEAMAN Self-Propelled PULVI-MIXER, like all SEAMAN MIXER models, leaves clean, sharp section-end in any type of stabilization. Turns around are quick because of short turning radius.

SEAMAN Deep Mix Motorized unit mixing for 18 inch (compacted) sand and rock dust base. Note high fluff behind the SEAMAN which indicates exceptional depth. In this case the SEAMAN mixed 30 inches of loose material. SEAMAN Deep Mix unit is recommended for sub-grade stabilization and fill processing. Mixes up to 800 cu. yds. per hour.

the SEAMAN DEEP-MIX PULVI-MIXER

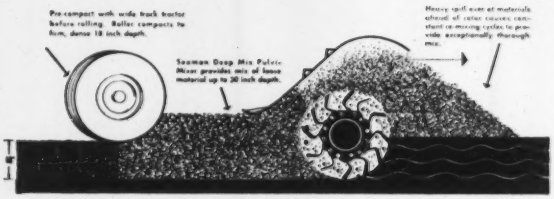
Pre-compact with wide track tractor before rolling. Roller compacts to firm, dense 18 inch depth.
Seaman Deep Mix Pulvi-Mixer provides mix of loose material up to 30 inch depth.
Heavy spill over of materials ahead of rotor causes constant re-mixing cycles to provide exceptionally thorough mix.

Diagram showing operating depths of SEAMAN Deep Mix unit and movement of materials in mixing chamber. Note heavy spillover ahead of rotor which produces constant re-mixing cycles as the SEAMAN moves ahead.

SEAMAN MOTORS Inc.

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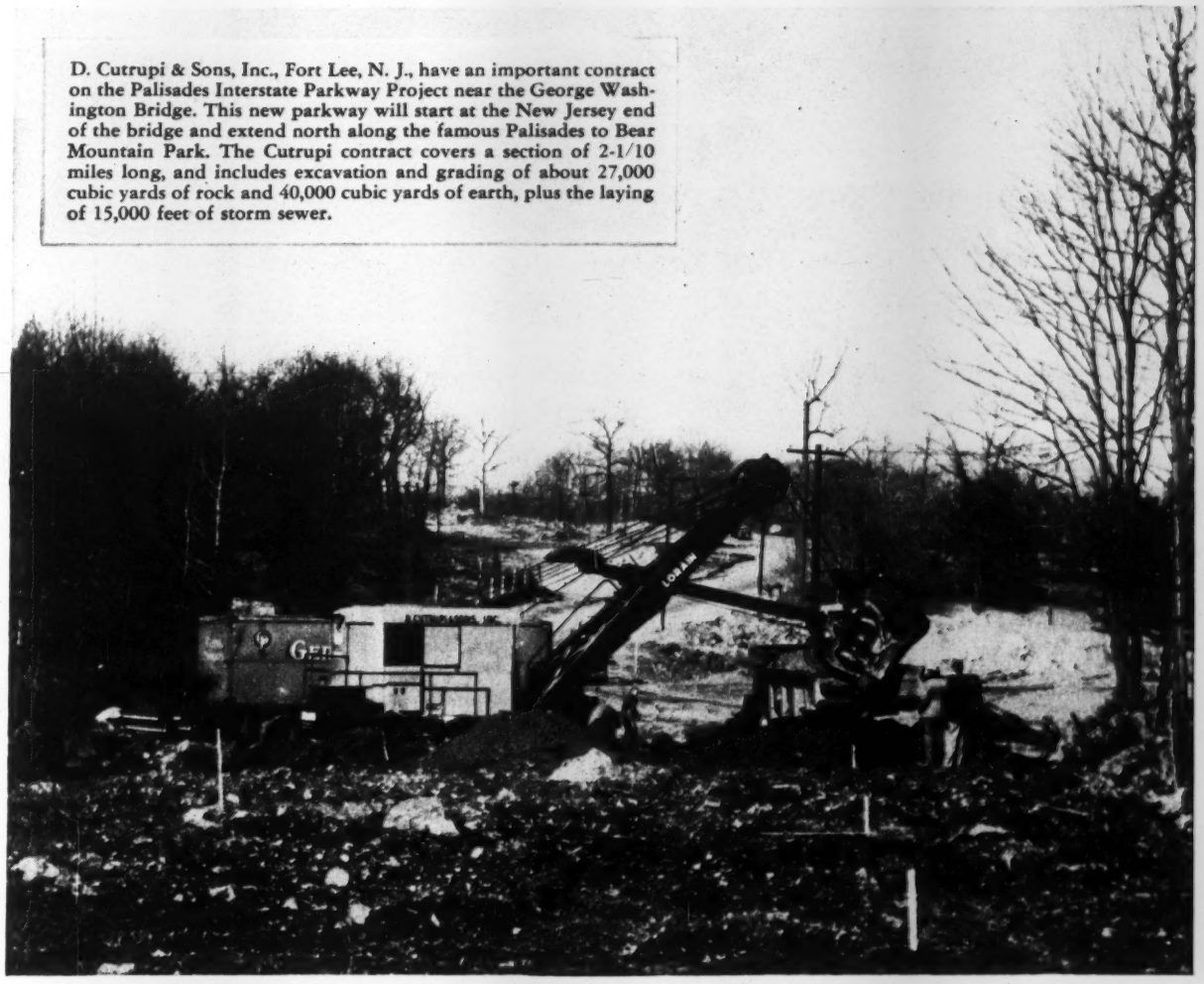
keep equipment rolling

on New Jersey Parkway Project

D. Cutrupi & Sons, Inc., Fort Lee, N. J., have an important contract on the Palisades Interstate Parkway Project near the George Washington Bridge. This new parkway will start at the New Jersey end of the bridge and extend north along the famous Palisades to Bear Mountain Park. The Cutrupi contract covers a section of 2-1/10 miles long, and includes excavation and grading of about 27,000 cubic yards of rock and 40,000 cubic yards of earth, plus the laying of 15,000 feet of storm sewer.



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That's why so many leading contractors specify Gulf lubricants and motor fuels. They have found that Gulf lubricants provide an extra margin of protection against mechanical delays . . . that Gulf fuels deliver full power . . . and they appreciate Gulf's prompt delivery service.

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GULF

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One of 3 Euclid twin-engine scrapers. Twin application is made possible by Allison TORQMATIC DRIVES.

25,900 trouble-free hours!

BACK in July 1950, the George M. Brewster Company, Inc., put to work three 18-yard scrapers equipped with Allison TORQMATIC DRIVES. At the same time, this New Jersey contractor converted four 13-yard bottom-dump trucks from mechanical drives to TORQMATIC DRIVES.

And to date these seven units have piled up 25,900 trouble-free hours—a record far surpassing experience with mechanical drives. This high-availability record has paid big dividends by lowering operating costs. Performance records like this tell why many operators are now insisting on Allison TORQMATIC DRIVES in their new equipment. If you are not familiar with all the advantages of these drives, get the full details from your equipment manufacturer or dealer or write to:

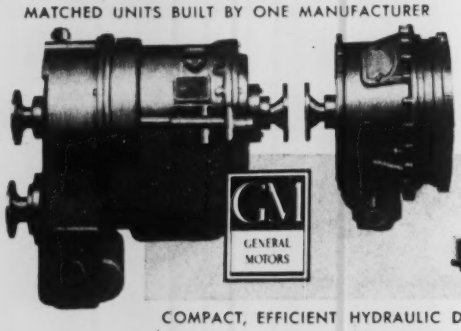
ALLISON *Division of* GENERAL MOTORS
Box 894EE, Indianapolis 6, Indiana

ALLISON TORQMATIC DRIVES

Unbeatable Team for Maximum Operating Economy

- ✲ *Quick-shifts* at full throttle with fingertip hydraulic control.
- ✲ *Holds* power to load at all times—no clutch pedal to push—no gearshift guess.
- ✲ *Cuts* maintenance cost by absorbing shock—eliminates engine lugging—prolongs equipment life.
- ✲ *Only* torque converter-transmission team designed to work as a unit and built by one manufacturer.

MATCHED UNITS BUILT BY ONE MANUFACTURER



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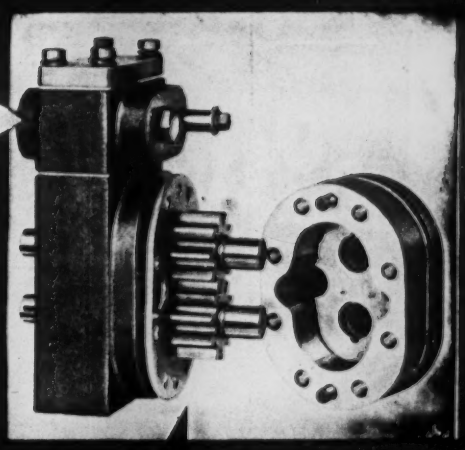

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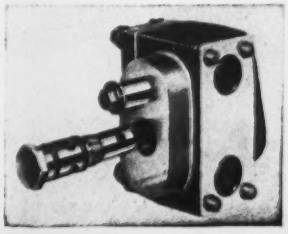

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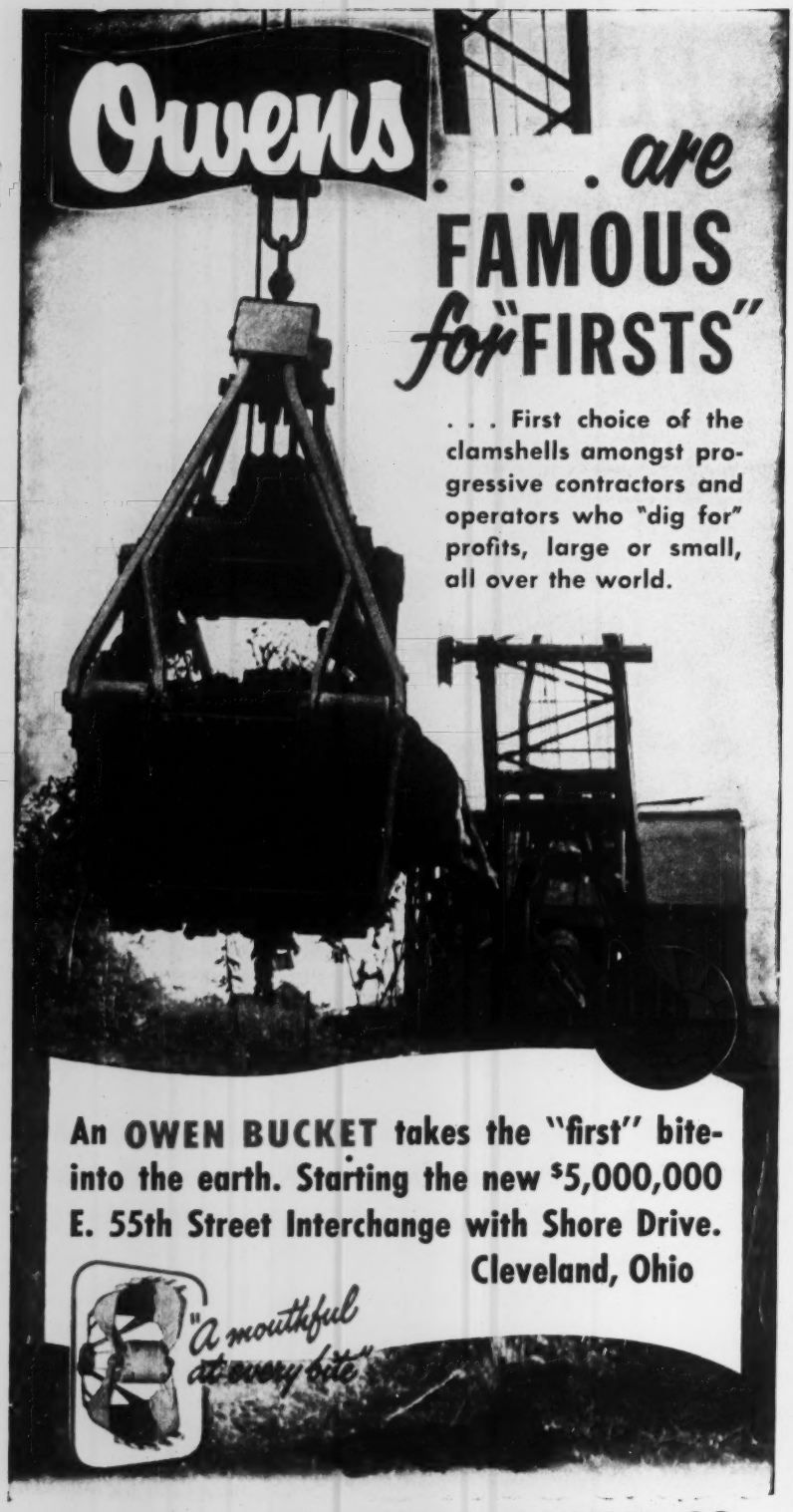
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READER COMMENT

How to figure shortage?

SIR: This is a comment on your article (ENR June 25, p. 23) reporting a 15% deficiency in the number of highway engineers.

ENGINEERING NEWS-RECORD usually takes a practical view of the engineering "shortage". In this case, however, this survey appears to be based on the statistics of the highway departments themselves, which have long taken a distorted view of this situation. Because of the following factors, I consider that the actual shortage is closer to 80% than 15%:

(1) The inclination of highway departments to fill engineering jobs with nongraduates; these jobs soon fit themselves to the incumbents. Engineering decisions are therefore "guessed at" or passed on to a higher level.

(2) The inclination of public bodies to work on the statistics of manpower rather than the cost of work accomplished. For this reason, most departments have more than enough engineers rated as such, but as the work is not adequately done, they seek to improve themselves by hiring more men rather than improving the caliber of the men they have.

(3) The inclination to place undue emphasis on age and seniority, rather than ability, and consequently to restrict the senior positions.

KING ROYER
Arlington, Va.

Plywood vs tornadoes

SIR: We always enjoy ENR, and the issue of June 25 with its editorial on "Lessons taught by tornadoes" was no exception. The sixth paragraph nevertheless has given us a bit of a jolt by recommending for racking resistance a material other than plywood.

The superior performance of plywood as sheathing for frame construction has been recognized for years and has been well summarized in articles in ENR (Oct 17, 1946, p. 117, and Jan. 24, 1952, p. 30). Higher design values accepted for plywood diaphragms in the Uniform Building Code and by the California State Division of Architecture recognize plywood's superiority against racking.

For many uses and ordinary service, a number of materials and combinations certainly may be used, but in earthquake and tornado areas—and that includes most of the U. S.—and even in the fringe areas of atomic blasts where maximum strength and rigidity

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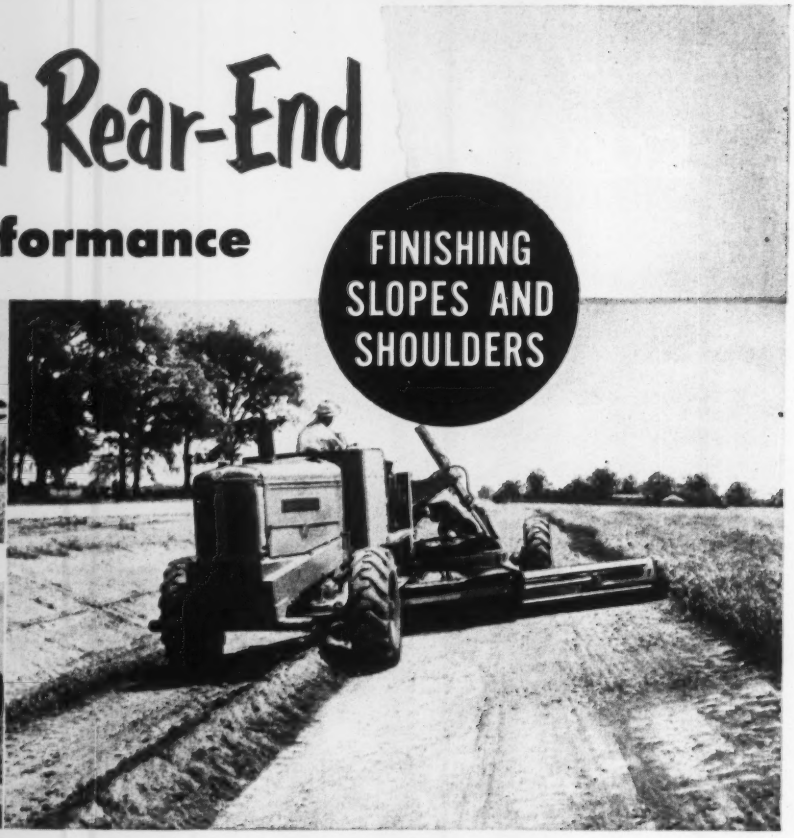

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READER COMMENT

are needed, the case for plywood sheathing seems clear. Please give us honorable or equivalent mention, even though we feel we deserve first place!

N. S. PERKINS
Technical Director
Douglas Fir Plywood Assn.
Tacoma, Wash.

[Editor—Proposal accepted. A magna cum laude for plywood as a material that provides high resistance to racking forces.]

Electro-Osmosis was needed

SIR: Referring to Byron Prugh's letter ("Electro-Osmosis needed?" ENR June 18, p. 12), it should be pointed out that, in soil mechanics, classifications of fine-grained soils are based upon the liquid and plastic limits and not on the grain size distribution, because plastic and nonplastic soils can have identical grain size distribution.

The "silt" that was treated by electro-osmosis at the Weadock Plant in Michigan was plastic, with liquid limits ranging up to 43 and plasticity indices up to 24. Therefore, it is obvious that such a material cannot be classified as "fine to very fine sand to coarse silt." The permeability of such plastic soils is only a very small fraction of non-plastic fine-grained soils with equal effective size.

Mr. Prugh refers to Karl Terzaghi and Ralph Peck for substantiation of his statements. May I point out that the section on electro-osmosis in the well-known book by Terzaghi and Peck is entirely based on data which I furnished to Terzaghi upon his request. My own knowledge on this subject at that time was considerably more limited than it is today, particularly on the economics of this method. With every practical application I find the usefulness and the possibilities of this method more extensive than even my boldest expectations several years ago.

LEO CASAGRANDE
Consulting Engineer
Arlington, Mass.

CALENDAR

City and regional planning programs, M.I.T., Cambridge, Mass., Aug. 27-Sept. 4.

Noise reduction program, Acoustics Laboratory, Massachusetts Institute of Technology, Cambridge, Mass., Aug. 24-Sept. 4.

Joint meeting International Association for Hydraulic Research and Hydraulics Division of the American Society of Civil Engineers, University of Minnesota, Minneapolis, Sept. 1-4.

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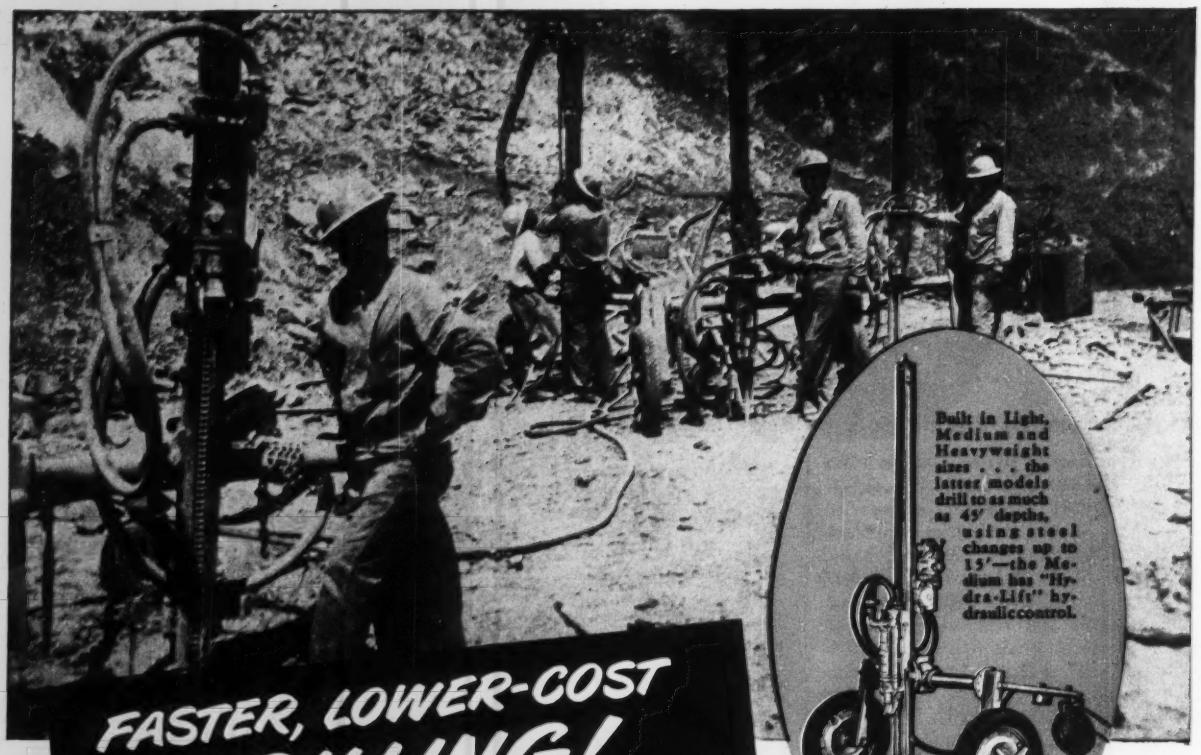

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THE CONSTRUCTION WEEK

- **Twenty-year minutes**—Voices of the past will have their say in the now-classic struggle between Arizona and California over who dips—and how deep—into Colorado River water.

  Colorado River Commission minutes, missing for two decades, have turned up. Herbert Hoover, former President, has given them to the Justice Department. Hoover was chairman of the commission in the early years of the wrangle.

  No one has said yet whether the minutes will help either side, but they'll be available to both.

- **Policy matter**—There'll be no federal housing policy for at least two months: Albert Cole, HHFA chief, has started a 60-day string of "shirtsleeve" talks with just about everyone concerned with housing.

  Cole has both sides guessing. Some private housing backers, recalling his solid record of votes to get Washington out of housing altogether, are worried he may now do just that. They want help for big developers and lenders, scant aid to be given little builders and buyers.

  Labor is quietly skeptical. AFL and CIO don't expect a strong public housing program, certainly, but they're waiting for Cole to move before they start swinging. Many observers think he's stalling.

  Unworried by the sniping, Cole says: "I'll do the best that an unprejudiced man can do."

- **Won't pay for speed-up**—Appalled at the prospect of rooting around the money market for cash to pay for accelerated roadbuilding, the Ohio Turnpike Commission has decided to defer completion dates as much as eight months.

  The decision, which was made when the commission saw bids were running more than 40% over estimates (ENR July 16, p. 17), will affect all remaining projects. Tape-cutting date of July 1, 1955, will be kept for the $326-million road.

- **Weather until mid-August**—Cooler than normal in eastern and southern states and the Pacific Northwest. Warmer than normal in the Southwest, Great Plains, upper Mississippi Valley and western Great Lakes. Nearly normal temperatures elsewhere.

  Heavier than normal rainfall is due along the Atlantic Seaboard, in the Northwest, and in Arizona. Subnormal rainfall is expected in the Midwest, Northern Plains and Texas. Elsewhere rainfall will be normal.

  For the meaning of "normal" in both temperature and precipitation in ENR's 20 cities, check the six-month record on page 41 of the July 16 issue. ENR will project the tables through March 15 of next year in its issue of Aug. 20. Thereafter, until year's end, the fourth issue of each month will carry weather data for the six months to follow.

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WASHINGTON OBSERVER

The Administration's top economist has a sharp eye on housing. Dr. Arthur Burns, new head man at the Council of Economic Advisors, (see page 60) tried not to tip his hand to congressmen questioning him about housing prospects. But several points were made clear in the exchange of question and answer:

Burns expects new starts to hold up for the year. Rep. Albert Thomas, Democrat from Houston, argued that unless mortgage terms are eased, starts might go as low as 700,000. Burns interjected to say that the housing dip in May might not be the start of the downtrend. And that, despite arguments to the contrary, he understood new mortgage financing was reaching new peaks.

•

June housing starts didn't settle the housing trend, either way. Starts dropped seasonally from May, and in the publicity the figure was tied to the fact that starts were off for two months in a row.

Actually, June starts were only 500 less than June a year ago. On a seasonally adjusted basis, June starts were at the annual rate of 1,063,000, which is about what the Administration has been estimating.

•

Long range, here's the thinking: The housing boom is at peak and will gradually taper off. But tapering doesn't mean a building depression.

A new theory taking hold is that repairs and modernization will take over once new housing turns down. Loans for refurbishing could be eased in order to stimulate this activity.

•

The industrial buildup for defense will begin to slack off under the terms of the new military appropriations program for 1954 fiscal year. The number of defense producers of guns and planes will be reduced, which means fewer buildings for equipment, etc.

This follows Secretary Wilson's basic line: The Democrats went too much overboard on base-broadening for defense; he would rather depend on conversion of existing civilian manufacturing, rather than building new.

•

Dispute over how to handle secondary boycotts has split Eisenhower's advisers handling Taft-Hartley recommendations. Labor Secretary Durkin wants to let unions use the secondary boycott when the strike is "legal." Commerce Secretary Weeks wants to tighten, not loosen T-H restrictions. The outcome: Eisenhower won't put a labor bill before Congress this session, but still may send up a message with general recommendations. And he will have to decide finally what so say on boycotts.

•

Top-to-bottom management survey of Bureau of Public Roads has been done at the order of Commissioner Francis V. du Pont. Efficiency experts of Booz, Allen, and Hamilton have been quietly studying how the agency is organized. The report's recommendations are expected to be a big factor in changes du Pont will gradually put into effect.

•

Dexheimer appointment (ENR July 16, p. 21) **settles dust at Bureau of Reclamation.** He's a Westerner, a career man, knows the bureau from top to bottom. His selection is a complete turnaround from Administration's original idea of getting a complete outsider for the job. Now that Dexheimer's in, continuity with the bureau's past is likely, and any drastic changes most unlikely.

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'Independent' survey favors federal Hell's Canyon plan

Consultant, engaged by former Interior Secretary, hits Idaho Power Co. scheme in long testimony before FPC

One of the nation's most controversial power development issues—whether a federal high-dam or Idaho Power Co.'s proposed three-low-dam plan is best for the Hell's Canyon stretch of the Snake River in Idaho and Oregon—took a significant turn in Federal Power Commission hearings last week.

Occasion was presentation of a report favoring the high-dam plan by John S. Cotton, consulting engineer of San Anselmo, Calif., whose study was undertaken at the behest of former Interior Secretary Oscar L. Chapman. It was to be an independent analysis and comparison of the federal and the Idaho Power Co. plans.

• **Testimony last three days**—At FPC hearings last week, Cotton gave his conclusions under a gruelling, three-day cross-examination by Idaho Power Co. lawyer, R. P. Parry.

Directly at issue is whether FPC should grant a federal license to Idaho Power Co. for the construction and operation of its proposed power development on the Snake River. Before ruling, FPC must find that the plan would provide for the most comprehensive development of the site.

Opposing the utility company application are a number of Pacific Northwest public power, farm and labor groups. They are plugging for federal construction and operation of one large multi-purpose project at the Hell's Canyon site.

From a construction standpoint, the conflict is between the $133-million development which Idaho Power proposes to undertake immediately upon receipt of a license and a $350-million project which would be carried out by the federal government when and if Congress should authorize it.

• **Big publicity build-up**—The 100-page Cotton report got a sizable publicity build-up before the FPC hearing. Proponents of federal development had earlier charged the Interior Department was attempting to down-grade the report since it was no longer a special pleader for the high dam.

General conclusions of the Cotton report, submitted to Interior Secretary Douglas McKay in April are:

• The Idaho power three-dam scheme is not economically feasible.

• It is much less desirable from an economic standpoint that the high-dam scheme proposed by the Federal Bureau of Reclamation.

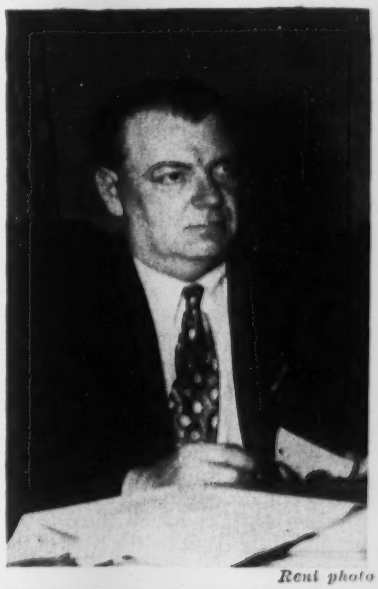
• The high-dam plan completely develops the power resources of the site, and is the most attractive from all points of view. It would provide some 600,000 additional low-cost kilowatts of firm power which would be lost under the Idaho power plan as well as substantial indirect and intangible benefits.

More specific findings:

• Salable firm kilowatts of power from the federal high-dam development would be 1,461,000 kw as compared to 885,400 under the three-low-dam plan.

• Average cost at load center of salable firm power of the federal project would be $19.09 per kilowatt year as compared to $48.90 for the Idaho power projects.

• **Worked for FPC**—Cotton is a former FPC engineer who worked some eight years in the agency's San Francisco regional office. Since leaving FPC in 1940, he has been a consulting engineer and has had a number of assignments in the hydro-electric development field.



Keni photo

JOHN S. COTTON, California consulting engineer, defended his findings in favor of federal Hell's Canyon plan in three-day testimony before FPC.

Under cross-examination by the Idaho Power attorney, Cotton made these qualifications in his report:

• His cost estimate of the three-dam scheme of $256,769,800, compared with the company estimate of $133,000,100, (see table below) was prepared from preliminary reconnaissance designs which differed considerably from the company designs.

• Cotton had spent only two days in the vicinity of the sites of the proposed development, and had viewed the single Hell's Canyon site from the window of a commercial airplane on a regular commercial flight.

• He had conferred extensively with federal agencies on the proposed high-dam plan, but had not talked with Idaho Power officials on their plan.

• He had depended on Bonneville Power Administration and Bureau of Reclamation for some of the estimates he had used for the Idaho Power plan.

• The study and report had been completed in about six weeks of actual working time by Cotton and one assistant. Part of this time was devoted to a comparison of the federal plan with the Idaho Power five-low-dam plan, which was later discarded in favor of a three-dam scheme.

• An alternate upstream high-storage

Comparative construction cost estimates for Idaho Power Co. scheme

	Idaho Power Estimate	Morrison-Knudsen Estimate	John S. Cotton Estimate
Oxbow	$23,604,500	$23,386,633	$48,340,900
Brownlee	63,594,800	63,782,519	118,874,800
Hell's Canyon (Low Dam)	45,800,800	45,474,401	89,554,100
Totals	$133,000,100	$132,643,553	$256,769,800

dam could provide many of the benefits which Cotton had attributed to the high Hell's Canyon Dam in his report.

Particularly on the matter of cost estimates, the Cotton report ran into direct conflict with figures given by earlier witnesses at the hearing (see table).

E. A. Woodhead, chief consulting engineer for the company, said his estimate of $133 million was based upon long experience in the construction, maintenance and operation of plants in the Idaho Power system.

An even lower estimate was given by Bernard Williams, vice president of Morrison-Knudson, Inc., which has built several of the Idaho Power projects. Williams estimated construction cost of the electric company projects would be only $132.6 million and might run 3 to 4% less if constructed at the same time rather than in sequence.

Williams testified at the hearing, "we (Morrison-Knudson) are not only willing but anxious to enter into a construction contract for all three or for any one of the dams on the basis of the power company's estimates."

These estimates are a major factor in determining the annual power production costs of the projects, since there are no fuel costs and operating costs are a comparatively minor factor.

• **Testified as FPC witness**—Cotton took the stand as a witness for the FPC staff, which had presented the report on its own behalf. Direct testimony consisted mainly of routine explanation of the report. The bulk of Cotton's testimony came during cross-examination.

The Hell's Canyon hearings are now in their third week, and appear likely to be spread out over several months. Following the presentation of testimony in behalf of the company and the FPC staff, there will be a recess before opponents of the low-dam scheme are called on to make their formal plea.

These opponents, headed by the National Hell's Canyon Assn. are asking a 90-day continuance of the hearing to permit them to prepare their presentation. Thus far there has been no indication that this request will be granted.

• **Interior's role is problem**—Those backing the high federal dam had been counting on Interior Department to carry the burden of their argument. When Interior pulled out as a special pleader in May, this job fell to organizations in the Pacific Northwest, which have been organized since that time into NHCA.

NHCA has charged that their most competent witnesses must be drawn from federal agencies—mainly the Interior Department. They have charged that Interior Secretary Douglas McKay is on record in favor of the Idaho Power Development, and any federal employee who testifies in opposition to this view would run the risk of losing his job.

FPC draws up St. Lawrence power permit

The Federal Power Commission last week completed details on its 50-year license to the Power Authority of the State of New York for construction of the $316-million St. Lawrence power project (ENR July 16, p. 21).

The project is to be built on the U. S. side of the St. Lawrence with the Hydro-Electric Power Commission of Ontario building a similar connecting project on the Canadian side.

There are two departures from standard FPC licenses:

• The New York agency is required to make power from the project available to other states within an economic transmission distance.

• The licensee is required to build diversion facilities at the Massena Canal which will permit continued diversion of a portion of the St. Lawrence flow through the canal. Within one year, the authority is to submit a report as to the feasibility of providing works to permit continued operation of the Massena hydroelectric project, owned by a subsidiary of the Aluminum Co. of America, both during the construction period and at times when the main St. Lawrence project is not able to use all the available flow.

FPC conditioned the license, as usual, to require that construction begin within one year and completed within seven years. This is subject to extension in the event that court action delays affirmation of the license.

Before the authority can start its half of the work it must arrange financing and complete engineering plans. The plans on which its application to the Federal Power Commission was based were prepared by the Army Corps of Engineers some years ago.

How the engineering work is to be handled has not been decided. At present, the authority's engineering work is being done by Franklin J. Leerburger, consulting engineer, New York.

Meanwhile, chances of Congress passing the St. Lawrence Seaway bill at this session remained dubious. The Senate Foreign Relations Committee has reported the bill favorably and the Senate Republican Policy Committee has authorized the Majority Leader to bring it up for action before adjournment.

However, if further debate on the measure threatens, it is likely consideration of the bill would be postponed in the effort to clear the decks for adjournment. The House committee handling the seaway bill has concluded hearings but will not report the bill until the Senate acts.

SITE of St. Lawrence power and seaway projects in the International Rapids. U. S. collaboration with Canada on power development is set; a bill to permit participation on the seaway is pending in Congress.

Ohio highway program gets big boost under several new revenue measures

Roadbuilding administrative machinery reorganized by legislature; use of consulting firms authorized

Ohio's 100th General Assembly has completed a session that long will be noteworthy for the steps taken to expand and accelerate the state's highway program.

To increase highway funds and improve their administration, the legislature:

- Provided for $43 million in additional annual revenue for highways by enactment of an axle-mile tax designed to raise $20 million and a one-cent increase in the gas tax to yield $23 million.
- Voted to submit a constitutional amendment to the voters in November to permit a $500-million bond issue for long-range highway improvement program. (If approved, bonds would be issued at the rate of $125 million per year for four years and would be retired by the axle-mile tax.)
- Appropriated $15 million for emergency highway construction and repairs, including access roads for the Pike County atomic energy plant.
- Renewed legislation requiring distribution of 23% of the motor vehicle license revenue—more than $11 million—to local governments for construction of county, township and village roadways.
- Created a three-member highway construction council to draft a highway construction priority list and control expenditures of new-road taxes.
- Reorganized the state highway department into four new bureaus: planning, construction, maintenance, and administration.
- Waived the requirement that the Director of the State Highway Department be a civil engineer, although providing that the four deputy directors (of the new bureaus named above) and the 12 division heads must be professional engineers.
- Authorized the state highway department to employ consulting engineers for the preparation of plans for projects costing more than $1 million.
- Relieved the highway director of responsibility for the Bureau of Motor Vehicles and the Highway Patrol so that he can concentrate on highway construction and maintenance. Vehicle registration and allied functions will come under a highway safety director, a new post created at a $10,000-per-year salary.

• How axle-mile tax works—Although having the same objective, Ohio's axle-mile tax is figured on a different basis than the ton-mile and weight-distance truck levies of other states. It works this way:

Trucks of less than three axles are exempt. Owners of the larger vehicles annually must declare the maximum number of axles their tractors will haul. For every mile these vehicles travel, loaded or empty, a mileage tax will be paid according to one of these categories: one-half cent per mile for single unit trucks with three axles; one cent per mile for tractor-trailer combinations with three axles; one and a half cents per mile on trucks with four axles; two cents per mile on tractor-trailer combinations with five axles; two and a half cents per mile for tandem rigs with four or more axles.

Truckers are required to keep records and report quarterly. Federal, state and local government vehicles are exempt. Out-of-state trucks are subject to the tax, except those from states exempting Ohio truckers from similar levies.

If the voters approve the $500-million highway bond issue it will take legislative action to implement it.

Advance buying cuts highway land costs

California stands to realize big savings in the cost of right of ways for future highway expansion by using a revolving fund to acquire land before the price is boosted through home and industrial developments and other improvements.

The fund was set up at last year's session of the state legislature with a $10-million grant. Another measure makes an additional $10 million available Sept. 9 and a third $10-million installment on July 1, 1954.

Gov. Earl Warren, in signing the latest grant for advance right-of-way purchases, cited a piece of highway property along the Bayshore freeway near San Francisco that was bought for $30,000 but was estimated as likely to be worth $470,000 by the time road construction could begin.

Maj. Gen. Bernard L. Robinson, Deputy Chief of Army Engineers for Construction.

U. S. Signal Corps photo.

Brig. Gen. Albert C. Lieber, Deputy Chief of Army Engineers for Military Operations.

Deputy Army Engineer post divided

The post of Deputy Chief of Army Engineers has been divided into two positions—a deputy chief for construction and a deputy chief for military operations.

Maj. Gen. Bernard L. Robinson, who has held the single deputy chief's post, will supervise the Corps of Engineers' construction activities. His duties will cover military construction and engineering, civil works construction, safety, real estate, and legal functions.

Military operations will be under Brig. Gen. Albert C. Lieber, who has been Assistant Chief of Engineers for Military Operations. These functions include supply and procurement, research and development, nuclear power, mobilization and operational planning, intelligence and mapping, organization and training of troop units and personnel administration.

Drought-stricken Texas ponders study of its need for water supply projects

Reclamation report scores past practice of building flood control works with inadequate storage capacity

Last week in Washington Sen. Lyndon B. Johnson was studying comments from his fellow Texans on an appraisal of the Texas water problems prepared for him by the Austin office of the Bureau of Reclamation.

Titled "Water Supply and the Texas Economy," this report was more than three years in the making. It points up the water problems in the state, now the center of a crippling, extended drought, and it indicates some solutions. While making no firm proposals for construction and stressing that it will be up to the state to take its water problems by the horns. The bureau's report does outline some possible lines of attack.

• **A $1.1-billion scheme**—On the critical Gulf Coast water supply problem, the appraisal is most specific and comes up with a $1.1-billion suggestion to triple available supply for the area and thereby boost annual income of the fast-growing industrial empire by some $6 billion.

"If Texas will provide the water supplies needed . . . the state stands fair to become one of the leading industrial areas in the United States," says the report. Opportunity knocks the loudest in petroleum refining, the petro-chemical industry and irrigated agriculture; and all require large new regulated water supplies.

USBR, in its appraisal, decries the practice to date of building main-channel flood control projects with little if any appreciable capacity to store water. Eighteen Texas reservoirs completed or under construction have cost the federal government $247 million. Of these only Falcon Reservoir on the Rio Grande was conceived primarily for water supply (2.5 million acre-ft of its total 2.8 million). Only 1.2 million acre ft are available for water supply out of the total 8.7 acre-ft of the remaining 17 reservoirs.

Unless past policy of primary attention to flood control is changed, says the report, 13 more federal reservoirs currently authorized might be built for some $286 million, to add only 1.7 million acre-ft exclusively for water supply. And 1.2 million acre-ft of this would be in a single reservoir, Oakville on the Cueces River, the only one planned primarily for water supply. Dam sites are too scarce to be used without full consideration of the water supply problem, points out the report; reappraisal of all authorized projects is in order with state as well as national interest taken into account.

• **The growing problem**—Texas now uses about 7.7 million acre-ft per year, 2½ times as much water as it used in 1940. About 85% of this is for irrigation, and some 65% of the irrigated acreage is now dependent on depleting ground water reserves, now supplying nearly half of all water used.

Meanwhile, rivers of the state discharge a runoff (mostly into the Gulf) of over six times as much water as the state uses. Texas' future depends on regulation and use of this runoff.

The whole state may never be rid of its water problems. USBR in its appraisal sees no hope of more water for the far west Pecos Valley-Trans Pecos area.

In the northern high-plains area, the Canadian River project (ENR July 16, p. 43) is the white hope. The bureau's appraisal sees this $85-million project as probably too big for financing by 12 interested cities. (Recent developments—see ENR's story—indicate otherwise.)

In the central area of Texas—a broad swath including the Red Bed region, Edwards Plateau, and the cities of Dallas, Ft. Worth, Waco, Austin and San Antonio—USBR sees the water problem solved best by locally financed multi-city projects.

On the Gulf Coast, the problem is one of transporting excess flow from eastern rivers to the water-short area mostly south and west of Corpus Christi. The general plan outlined for doing this contemplates an authority set-up and a self-liquidating project to store and transport 11.5 million acre-ft of water. As tentatively estimated, $370 million of the total $1.1 billion cost would go for storage reservoirs. The rest would buy pipe and pumps to transfer the stored water westward and distribute it.

USBR recommends that federal aid not be sought for such a project unless it were found to be beyond financing capacities of local interests.

Federal highway hearings are concluded

Hearings on national highway policy have been concluded by the McGregor Roads Subcommittee of the House Public Works Committee. The group will now settle down to writing a bill which would spell out the Administration's road building policy.

The subcommittee asked witnesses to testify on 13 points ranging from toll road financing to highway safety programs. The hottest point of controversy was excise and fuel taxes. Most witnesses agreed quite positively that these levies are discriminatory and unfair in application. They felt that high federal fuel taxes are robbing the states of income they need to pay for their highway programs.

William Stinchcomb of the American Automobile Assn. told the subcommittee "it has traditionally been the point of view of the AAA that the field of motor fuel and motor oil taxation should be the prerogative of the state, and the state alone."

John Hulse, testifying for the Truck-Trailer Manufacturers Assn. pointed out in asking for excise tax repeal, that "these excise taxes are general revenue measures, and, in theory at least, temporary ones. . ."

Other testimony asked that a greater share of automotive taxes be allotted to road work. Right now the government is taking in around $2 billion from these taxes; the federal road program spends about $500 million.

The role of Bureau of Public Roads was one of the points under discussion. Witnesses were unanimous in their praise of the bureau's work although many recommended that its efforts be concentrated on the interstate system, rather than dissipated on local projects. A survey of the bureau's operation is currently being concluded by Booz, Allen and Hamilton, and the report of this group to commissioner du Pont will undoubtedly figure in the delibrations of the McGregor subcommittee.

During the three months of hearings, testimony on the federal road program was taken from such groups as the American Association of State Highway Officials, the American Trucking Assn., the U. S. Chamber of Commerce, the American Road Builders Assn., the National Association of Railroad and Utilities Commissioners, the American Transit Assn., the Associated General Contractors of America, the National Association of County Officials and various local and state highway groups.

The subcommittee's version of a new federal highway aid bill is expected to be ready when Congress comes back from its summer recess next January.

Corps of Engineers Photo

LOOKOUT POINT DAM, the fifth of 19 planned projects for Willamette Basin flood control, is 84% complete with initial power output scheduled for next July.

Economy drive hits Willamette Basin

Oregon's Willamette Basin flood-control program, originally scheduled to include 19 dams and reservoirs, might end with completion of its fifth project in view of the current congressional economy wave.

Fifth project is Lookout Point Dam, now 84% along and scheduled for initial power output next July. Storage reservoirs at Fern Ridge and Cottage Grove Dams were finished in 1941-42, and Dorena in 1949. Detroit Dam, dedicated in June by Interior Secretary Douglas McKay (ENR June 18, p. 26), was the first with hydroelectric power. Work on Detroit and its Big Cliff regulating dam is slated for completion in 1955.

If federal appropriations aren't forthcoming to initiate other projects in the basin program, there is little chance that any of them will be carried out by public or private utility interests because the power potential of the proposed works is relatively minor in relation to construction costs.

Only three appear to offer power possibilities worth considering. These are Cougar on the south fork of the McKenzie River, a potential 25,000 kw; Green Peter on the Middle Santiam, 81,000 kw; and White Bridge, a regulating dam for Green Peter, 15,000 kw.

Congressional authorization did not include power facilities, but Rep. Harris Ellsworth submitted a bill to the House in April which would remedy this. He contended the power increments to the Pacific Northwest pooling operation would justify the additional Federal expenditure.

Lookout Point, which together with its regulating dam at Dexter site will cost $96.6 million, will have 115,000 kw installed capacity plus 15,000 kw at Dexter. The main earth and gravel fill dam will have a maximum height of 250 ft and overall length of 3,175 ft. with gate-controlled concrete gravity spillway. It will impound 351,000 acre-ft of usable storage in a 14-mi. long reservoir located at the head of Willamette Valley 22 mi southeast of Eugene. Work was started in 1949 and is scheduled for completion in 1956.

Florida toll road studies initiated

A cost estimate and route study of the projected 110-mi toll highway from Miami to the Ft. Pierce area has been initiated by the Florida Turnpike Authority.

Engaged to make the preliminary survey are Howard, Needles, Tammen & Bergendorf of New York, Smith & Gillespie of Jacksonville and Rader Engineering Co. of Miami. A survey of traffic potential is being made by the New York firm of Coverdale & Colpitts.

Beach improvements

A Division of Public Beaches has been set up in the Massachusetts Department of Public Works to carry out improvement of state-owned beaches. A $1-million appropriation has been made for construction of parking and recreation facilities at Salisbury Beach north of Boston, near the New Hampshire line. Another measure to encourage development of beaches usable for bathing and recreation empowers municipalities to organize public beach districts.

$95 million asked for defense area schools

The House last week passed two bills designed to continue for another year assistance to schools in federally impacted areas. The Senate Labor Committee now has before it HR 6049 which would authorize expenditure up to $95 million for school construction, and HR 6078 which would authorize compensation to local school districts for maintenance aid.

The Senate committee will not hold hearings and is expected to complete action on the two measures this week.

The bills would continue Public Laws 815 and 874 that have been in effect since Korea and are designed to compensate the local areas for the educational burden placed on them by federal installations. The communities are faced with a two-fold problem when the federal government places a military or defense installation in their area: (1) The property, belonging to the government, is tax free, and (2) the burden on school facilities is increased by the influx of children of federal workers.

An effort to increase the construction authorization by $78.3 million was defeated in the House.

Earthquake design requirement revised

Studies of damage resulting from last year's earthquakes in the Bakersfield and Tehachapi areas have led to a new California law affecting earthquake-resistant design of public buildings.

The new law requires that buildings less than 40 ft high be designed to withstand a horizontal force of not less than 3% of the vertical design load. For buildings over 40 ft high, the present 2% requirement continues to be applicable.

Stream sanitation gets boost in North Carolina

Public hearings are being held in several North Carolina cities prior to adoption of standards for various types of water supplies, which have been approved tentatively after eight months' work by the state stream sanitation committee.

Separate fresh water standards have been fixed for drinking water, bathing, fishing; industry and agriculture; and navigation. Salt water standards have also been set up pertaining to shell fish for human consumption, bathing, fishing and navigation.

When the standards are applied to the state's streams following field studies, necessary pollution control measures will be recommended.

Hoboken pier

Bids permit prestressed concrete as alternative

New York harbor may have its second pier with a prestressed concrete deck as a result of bids invited this week by the Port of New York Authority for construction of Pier C at Hoboken, N. J.

Alternative designs, calling for an ordinary reinforced concrete deck structure or one of prestressed concrete, are incorporated in the bid documents. Bids will be opened Aug. 25.

The substructure will be of conventional steel H-pile design, but under the prestressed concrete alternative, pile caps would be cast in place and prestressed. Stringers, which would be laid tight against each other to form a basic deck, will be precast, pre-tensioned. This type of deck was used previously for New York's Pier 57, which also is famous for its unusual buoyant-box substructure (ENR July 31, 1952, p. 36).

Hoboken Pier C plan size is to be 700 ft long by 330 ft wide, making it one of the harbor's widest piers. A railroad track will serve one apron, and a double track line will run in a well two-thirds the interior length of a steel one-story piershed.

The new Pier C for Hoboken was designed for the Port of New York Authority by Parsons, Brinckerhoff, Hall and MacDonald, New York consulting engineers.

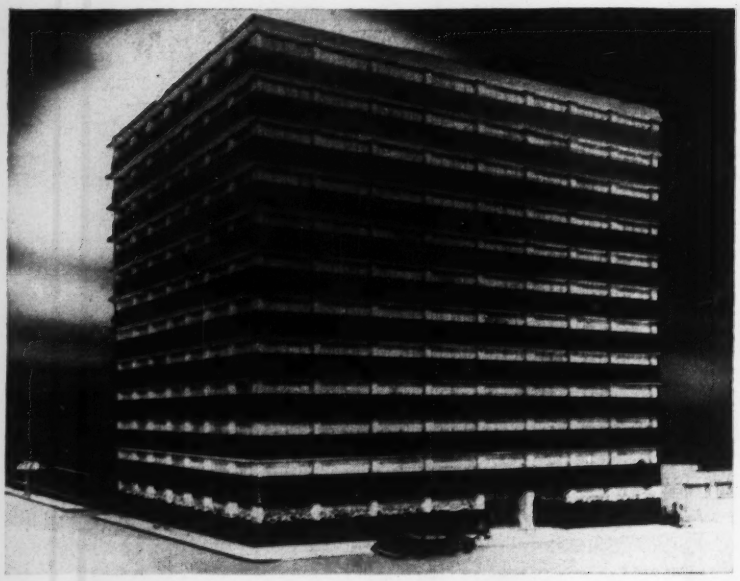
California tightens public works laws

A new California law requires that an engineer in charge of construction in a bridge and highway district be a licensed civil engineer. It also directs boards of directors of districts to insure bridges and other facilities against damage or destruction.

Another measure requires California's county boards of supervisors to appoint licensed engineers as construction engineers in drainage districts, with the powers and duties of county surveyors.

Mt. Greylock tramway

Construction of an aerial tramway to the summit of Mt. Greylock, a 4,000-ft peak in western Massachusetts was authorized by the recently adjourned session of the state legislature. A special authority was empowered to issue $1.6 million in revenue bonds. The facility will become state property when the bonds have been retired.



ALUMINUM CANOPIES extending about 24 in. over all windows to reduce the heat load on air-conditioning facilities will be a distinguishing feature of the new 12-story reinforced concrete Sunray Oil Corp. building in Tulsa, Okla. Windows will be smaller in depth than usual; interior window sills will be about 52 in. high. Manhattan Construction Co. is the contractor; Hugh R. Humphreys, the architect. Construction is scheduled to begin Aug. 1.

Idaho test road shows some failures

Some failures are beginning to appear in under-designed sections of pavement on the test road built last year by the Western Association of State Highway Officials in the region of Malad, Idaho (ENR July 3, 1952, p. 36).

Operation of loaded trucks over the test loops was resumed June 11, following special deflection studies started early this past spring.

The pavements under test are all of bituminous construction. Pavements and bases range in total thickness from 6 to 22 in. All are laid on soils typical of large areas in the West.

The smaller trucks used in the test are loaded to 18,000 and 22,400 lb per single rear axle, and the tandem-axle loads are 32,000 and 40,000 lb per pair of axles.

Test loading was begun last November and was discontinued for the winter after 17,000 applications had been made. Temperatures were low and deflections were of small magnitude. Very little distress was noted except in the 6-in. section.

Concerning operations since June 11, the Highway Research Board, which is conducting the test states: "The moisture content of the subgrade soil has increased, as is usually the case after a winter, and consequently the under-lying soil is less stable than it was last fall. Thus the first 1,000 or so axle applications this summer have caused marked damage to some of the 6-in. sections, amounting to failure in the wheel path nearest the pavement edge. Damage has also been noted in some spots of the outer wheel path of the 10-in. thick sections but aside from minor depressions in the wheel paths, no serious distress is yet evident in any of the 14, 18, or 22-in. sections.

"The pavement behavior thus far this summer was anticipated by the engineers who designed the test. Sections were included to represent underdesign as well as sections that are assumed to be adequate or overdesigned. Minor pavement failures consisting of rutting and cracking of the asphaltic concrete surface are repaired by means of thin bituminous 'skin patches' and observations of pavement behavior in these areas will be continued.

"When it is no longer possible by means of skin patches to carry traffic over these areas, the immediate failed area is rebuilt in order to avoid penalizing adjacent sections. The pavement maintenance and reconstruction required by the failures this summer will be conducted in such manner as to delay test traffic as little as possible."

Highway engineers

Florida to hold three-year training program to aid in overcoming shortage

The Florida State Highway Department will operate a three-year in-training program as a basis for upgrading present employees and, it is hoped, as a means of attracting civil engineering graduates. Trainees will receive a starting monthly salary of $325.

Enrollment, which will be subject to change each year, is limited to 30 for the initial class. Already more than 150 department employees have applied.

The in-training program will be divided into six phases: administration, four months; field engineering, four months; construction inspection, eight months; road and bridge design, eight months; maintenance, six months; testing materials, six months.

A written examination will be given at the completion of each course and those with passing grades will receive a pay raise. According to Richard H. Simpson, head of the State Highway Department, trainees will receive a monthly salary of $400 upon completion of the three-year coure, with a $25 monthly boost after a year of satisfactory service.

Instructors will be highway department employees. The program will be headed by H. H. McCallum, assistant state highway engineer. Applicants either must have an engineering degree or be high school graduates who have reached the engineering-inspector rating with the highway department. Failure to pass tests in any two courses will disqualify a trainee.

According to the recent ENR survey of state highway department engineer requirements (ENR June 25, p. 23), Florida has 525 engineers as compared to a need for 650.

Reclamation project to be operated locally

The Bureau of Reclamation, which is building the Sly Park irrigation development in California, will wash its hands of the project once it is completed in 1955. It recently signed a contract turning over operation and maintenance of the project to the El Dorado Irrigation District.

The contract provides for an allocation of 87.5% of the water supply to irrigation and the remainder to municipal and industrial uses. It is estimated the project will provide 20,000 acre-ft of water per year.

Under local operation, the 40-year contract calls for a maximum price of $2.50 per acre-ft for irrigation water and industrial water. However, for the first two years charges of $1 per acre-ft will be made for irrigation water and $10 for municipal and industrial supplies. During the next three years the rates will be $2 and $15, respectively.

The lower rates in the early years of operation are designed to lessen the financial burden on the district which may be faced with expense of added distribution facilities.

News briefs . . .

• **The Shamrock grows**—A 17-story structure, combining office space, department store and hotel facilities, has been proposed as an appendix to the Shamrock Hotel in Houston, Texas. The $6-million building would have department stores on the first two or three floors and hotel rooms above the 11th floor. It would be financed, built and operated by Shelby Construction Co., Inc., of New Orleans. Architectural and engineering plans have been developed by August Perez & Associates of New Orleans.

• **Plastic skin roofing**—A sprayed-on plastic skin was the solution to the tough roofing problem presented by the need to resurface the sharply pitched gables of the 40-story Sherry-Netherland Hotel in New York. Progressive Industries, Inc., of Long Island City, N. Y., sprayed 500 gal. of vinyl resin-based coating over 10,000 sq ft of surface to waterproof it. In addition, seams and joints were calked with plastic compound.

• **Delaware River bridge**—A $3.4-million contract for construction of the foundations for two anchorage piers of the new seven-lane suspension bridge across the Delaware River between Philadelphia, Pa., and Gloucester, N. J. (ENR June 11, p. 23) has been awarded to Merritt-Chapman & Scott Corp. The anchorage pier foundations, 240 ft long by 145 ft wide, will be founded at 70 ft below mean high water on the Philadelphia side and at 52 ft on the New Jersey side. Designed to ease traffic congestion on the nearby Philadelphia-Camden Bridge, the new structure will have a 2,000-ft suspension span providing 150-ft vertical clearance. Modjeski & Masters and Ammann & Whitney are the consulting engineers.

• **Kentucky buys bridge**—Kentucky has completed negotiations to purchase the suspension bridge over the Ohio River linking Covington, Ky., and Cincinnati, Ohio. Under a $4.2-million contract, the Covington & Cincinnati Bridge Co., the present owner, will install a new steel flooring and paint the 86-year old span.

Conservation study

Federal advisory group continues research into building materials use

The Building Research Advisory Board has forwarded to the Office of Defense Mobilization a report on the second year of its study of conservation of building materials. Establishment of a Federal Construction Council is one of the board's principal achievements of the past year.

Object of the council, which consists of representatives of the construction agencies of the government, is to promote conservation through interagency technical collaboration. The council will serve as a clearing house for the exchange of technical information and a forum for discussion of construction and maintenance problems common to these agencies.

Formed on a trial basis on BRAB's recommendation in its first-year report on conservation, the council will continue its activities under the supervision of BRAB. The National Bureau of Standards representing the federal construction agencies, has contracted with BRAB to furnish the supervision. Amount of contract has not been settled, because the contributions of the various agencies have not been determined yet, but it is estimated to be around $50,000.

The two-year study of conservation in building construction began in June 1951, under the incentive of the Korean war. Its initial purpose was the conservation of materials to promote the government's guns-and-butter program.

As the study proceeded, supplies became more plentiful, and by the time the second year's survey was under way, the emergency nature of the build-up had passed. So BRAB shifted its objective to conservation recommendations that would be useful to the building industry at any time.

Members of the BRAB conservation committee were Leonard G. Haeger, director of research, National Association of Home Builders; R. G. Kimbell, director of technical services, National Lumber Manufacturers' Assn.; Douglas E. Parsons, chief, Division of Building Technology, National Bureau of Standards; Harry C. Plummer, director of engineering and technology, Structural Clay Products Institute; Walter A. Taylor, director of research and education, American Institute of Architects—all of Washington, D. C.—and Walter C. Voss, formerly head of the Department of Building Engineering and Construction, Massachusetts Institute of Technology, Cambridge, Mass.

California contractors capitulate

Northern California laborers get 15-cent wage hike after long strike and countering shutdown

Northern California contractors have acceded to AFL laborers' demand for a 15-cent wage hike after their $500-million construction shutdown in 46 counties failed to make the union capitulate.

The boost, effective July 14, brings the scale up to $2.00—five cents less than the union's original goal.

The union started the selective strike May 27 in retaliation against contractors who would not sign separate agreements. On June 23, AGC invoked the drastic shutdown measure—a last-ditch stand to stave off a wage hike that could upset the 10-cent raise pattern set in other building trades contracts.

Directors of Associated General Contractors—Northern and Central California chapters—and a union business representative signed the 15-cent agreement July 13. But before it became final, it had to be approved by union members and the employer group.

• **Trouble**—Already, however, the peace pact has lead to new trouble.

First action came from the AFL operating engineers union, Local No. 3. The engineers—according to AGC Director of Labor Relations, J. Robert Mitsch—were "ready to agree to the contractors' 10-cent raise until they heard of the wage won by the laborers. Then the engineers returned to original demands, announcing they would not provide men for jobs where contractors were not paying the desired scale.

• **Balking**—The AGC directors delayed ratification of the laborers' agreement, explaining they wanted to consider pacts with operating engineers at the same time. On July 16 the directors voted to give the engineers what they wanted—a 10-cent wage hike, effective May 25, and 2½-cent raise for health and welfare, starting July 6. That's in addition to the 7½-cent welfare payments won last year.

Both agreements were approved by the AGC membership on July 17. They already have received union ratification.

A few hours before AGC conceded to the laborers' demands, 800 laborers on the San Francisco payroll received a 15-cent hike. Civil Service Commissioners Francis P. Walsh and John M. Kennedy—recommending the boost—said it was demonstrated to them that 59% of the city laborers already were making the $2.00 scale under separate agreements between the union and individual contractors.

Mitsch, of the AGC, said the commissioners' move dealt "the final blow" to the contractors' effort to hold the line.

The commissioners said they were reluctant to grant an increase that might effect the strike but they had to act because it was the deadline set by the city charter for establishing craft pay scales.

According to the city charter, the "prevailing wage in private industry as of July 1" should guide the scale for city workers "when crafts have established a rate through collective bargaining with employers and such rate is recognized and paid throughout the industry."

The boost will cost San Francisco an additional $150,000 a year. The proposed pay scale, recommended for adoption by the Board of Supervisors' finance committee, does not become effective until the board approves it.

Another headache for the contractors is a wage dispute with AFL plumbers. The Valley local, the valley group of 11 locals and the plumbers of Local 38 are still on strike but negotiating with the San Francisco Master Plumbers' Assn.

In Marin, Mendocino, Sonoma and San Francisco Counties, Local 38 won a 15-cent hike in fringe benefits from the Heating, Piping and Air Conditioning Contractors' Association of Northern California. These gains include 10 cents vacation pay, 2½ cents for welfare and 2½ cents for the pension fund. But the master plumbers' group is standing firm on its offer of a 12½-cent hourly pay raise plus 22½ cents hike for welfare.

Settlement has been reached by Santa Clara County plumbers and steamfitters, who agreed July 11 to an employer offer of a 12½-cent hourly wage increase and 2½ cents for health and welfare.

Wide World photo

GUY FARMER is named head of NLRB.

NLRB chairman is named during confirmation rite

Taking the place on the board of Paul M. Herzog, Guy Farmer was appointed chairman of the National Labor Relations Board last week.

Farmer, a Washington, D.C., lawyer, had been named to the board by President Eisenhower on the previous week and quickly confirmed by the Senate. His appointment to the position of chairman was announced as he was taking his oath of office.

On taking the position, Farmer said: "I undertake the job not as a partisan of management or labor."

Herzog retired last month.

Delaware strike nears end

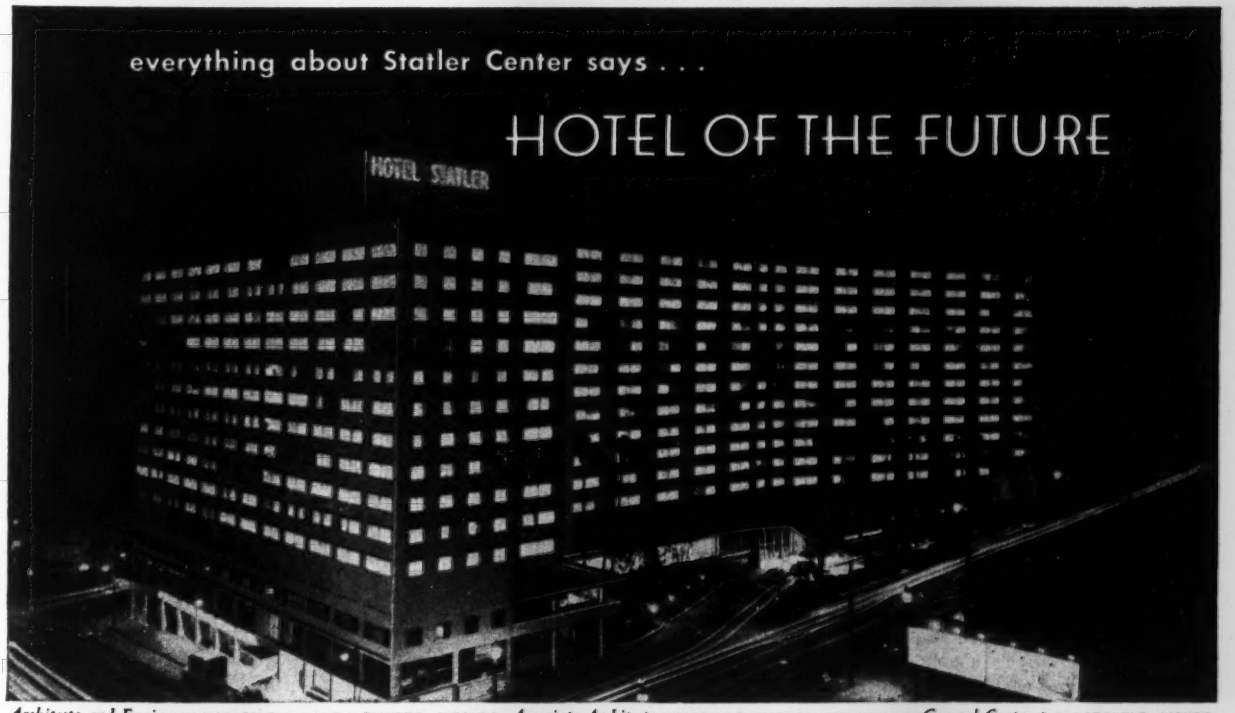
The costly eleven-week-old construction strike in Delaware, which had tied up all public, industrial and private construction work in Delaware since May 1, was virtually ended late this week.

AFL union carpenters negotiated a 20-cent hourly wage increase with Delaware general contractors, leaving only plumbers and steamfitters among 21 unions originally involved in the work stoppage yet to come to terms.

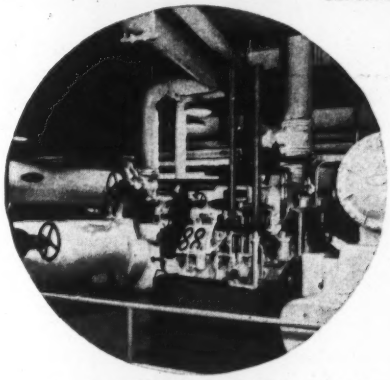
The carpenters' agreement calls for a 20-cent hourly increase, raising their pay to $2.82½ cents an hour effective immediately and expiring Apr. 30, 1954. No decision has yet been reached by the Allied Construction Industries, the contractors' organization.

everything about Statler Center says . . .

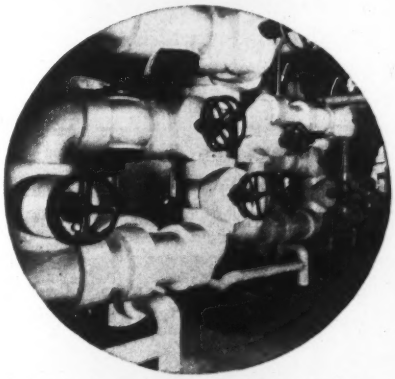
HOTEL OF THE FUTURE



Architects and Engineers: HOLABIRD & ROOT & BURGEE, CHICAGO. *Associate Architect:* WILLIAM B. TABLER, NEW YORK *General Contractor:* ROBERT E. MCKEE, GENERAL CONTRACTOR, INC., LOS ANGELES *Mechanical Contractor:* MEHRING AND HANSON COMPANY, LOS ANGELES



Among the 8000 Bronze and 700 Iron Jenkins Valves required for the piping systems which serve Statler Center are these, used at control points in the air conditioning equipment.



Boiler room in Statler Center, showing Jenkins Valves installed on hot water generators. A "City Within A City", the Center occupies an entire city block, has 120,000 sq. ft. of space.

. . . from building design to JENKINS VALVES

Here, honey-combed with light from 1300 picture windows, is Los Angeles' Statler Center — a shining example of future-minded planning. The $25,000,000 structure combines a 13-story office building with a luxurious hotel, thereby increasing use of public facilities and assuring a more stable income.

Guest rooms carry a step further the combination sleeping and conference room idea developed by Statler. Even its operating equipment marks the new Statler, as "The Hotel of the Future".

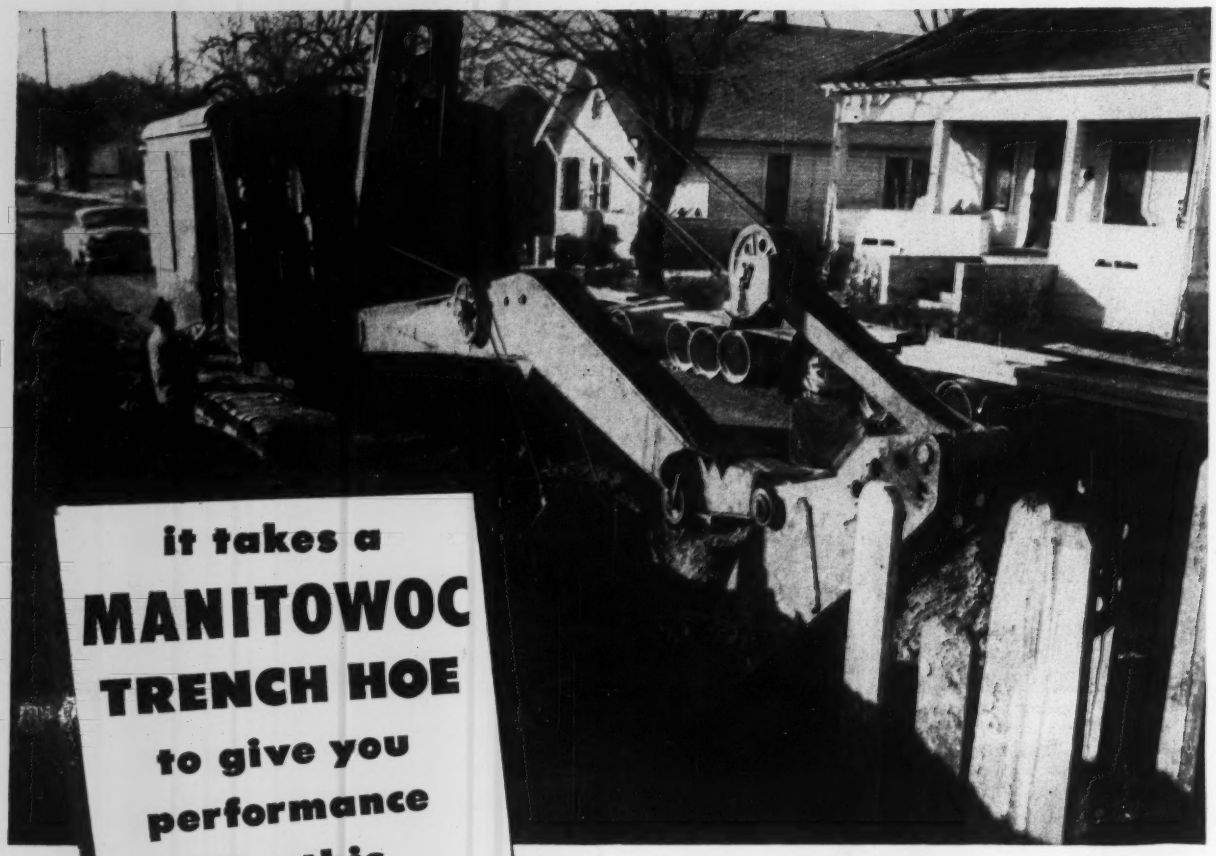
For heating, plumbing, air conditioning, sprinkler, and other vital pipelines, Jenkins Valves were selected . . . on the basis of *low upkeep cost records* in all types of services. This confidence in the demonstrated *extra measure* of efficiency and economy provided by Jenkins Valves is shared by leading architects, engineers, and contractors in every field of construction.

Despite this extra value, *you pay no more* for Jenkins Valves. For new installations, for all replacements, let the Jenkins Diamond be your guide to lasting valve economy.
Jenkins Bros., 100 Park Ave., New York 17.

JENKINS VALVES

LOOK FOR THE DIAMOND MARK

SOLD THROUGH LEADING INDUSTRIAL DISTRIBUTORS EVERYWHERE



it takes a MANITOWOC TRENCH HOE to give you performance like this

Texas contractor E. E. Farrow of Dallas was awarded a sanitary sewer line in the city of Paris, Texas, through extremely rough terrain, consisting of hard shale, sandy clay and a treacherous quicksand. Although Farrow owned several large trenchers, they could not be used because the ditch walls caved in immediately upon excavation.

HOW IT WAS DONE

A Manitowoc 2000-B trench hoe was placed on the job. The ditch was excavated from 18′ to 24′ deep. On the 24′ depth, digging a 54″ ditch, the 2000-B averaged between 80′ to 100′ of ditch per 8 hour day. Immediately behind the excavation operation it was necessary that every foot be cribbed. Under these conditions 80′ to 100′ of 24′ ditch per day is far above the average achieved with competitive machines of similar or even larger sizes. In the contractor's opinion, he was able to do 50% more per day with this Manitowoc than with any other equipment which he might have used on the job.

SAYS THE CONTRACTOR

"This Manitowoc Hoe is the only piece of equipment that I could have done this job with, without excessive construction costs and on this one job it went a long, long way toward paying for itself." Contractor Farrow, of course, has the crane and dragline attachments also, which were used on the power plant site immediately after the ditch was completed.

Make *your* next excavator a Manitowoc. Get complete details from Manitowoc Engineering Corp., Manitowoc, Wis.

MANITOWOC

SHOVELS 1-5 YD. Speedcrane CRANES 18-100 TON

U. S. dismisses case

Indictments had charged Chicago plasterers and lathers with trust

Two criminal indictments and three civil suits charging conspiracy to create a monopoly against Chicago plasterers and lathers have been dismissed by Federal Judge Joseph Sam Perry. The action was started by the government last year.

In sustaining the motions to dismiss the suits filed by attorneys for the lathers union and for the plasterers union, Judge Perry said that neither the indictments nor the suits contained a cause of action under the antitrust laws.

The indictments were returned on June 30, 1952. One named as defendants the employing Lathers Association of Chicago and Vicinity and Local 74 of the Wood, Wire and Metal Lathers International Union. It also named Harry D. Follett, association president, and Edward D. Chouinard, a lathing contractor and member of the association's joint board of arbitration.

The defendants were accused of conspiring to violate the antitrust laws by suppressing competition among lathing contractors, to restrict and exclude persons from participating in lathing operations and to monopolize Chicago area installations of lathing materials.

The second indictment included similar charges against the Employing Plasterers Association of Chicago; Local 5, Journeymen Plasterers' Protective and Benevolent Society, and Byron W. Dalton, president of Local No. 5.

Civil suits against the associations and individuals were filed later by the government.

Judge Perry held that the materials involved were purchased in Chicago and that it was a question of intrastate, not interstate, shipments in this particular case.

He said that the indictments and suits did not describe any interference with the market prices of the materials involved and that the defendants did not become associated with the materials until after they had arrived in Chicago.

Harry H. Faris, a government attorney, announced that a conference of Department of Justice attorneys would be held to determine whether the case should be appealed.

Kansas City strike enters tenth week

Following a week of congressional hearings in which top union and management officials appeared (on TV and radio) to try to explain why construction workers in metropolitan Kansas City, Mo., have failed to work in more than two months, the strike situation still appears unresolved.

Last week the strike entered its tenth week.

However, city officials said that negotiations were in progress and said that they would not interfere in the meetings unless the negotiations again broke down.

The congressional hearings took place in Kansas City's federal building. They were televised by WDAF-TV and broadcast at different times by radio stations of the area, either directly or by transcription.

Chairman of the hearings was Rep. Wint Smith, chairman of the House Subcommittee on Labor and Education.

Union leaders and management representatives testified. Allegations of rough union tactics were made by management and denied by the union men.

The hearings, according to observers, clarified the difficulty, but had little effect on the situation. About 25,000 construction workers are still off the job.

Truck strike worsens; 75,000 laid off

About 600 lumber truck drivers have joined the 1,200 sand, gravel and cement drivers in the 14-day-old strike which is crippling construction work in New York City.

Already an estimated 75,000 construction workers have been laid off as the 1,200 striking drivers halted deliveries on sand, gravel and mixed concrete. Closely coupled with the labor layoff came a 75% shutdown on $200 million worth of heavy construction.

Earlier, the teamsters' union had turned down an employers' offer of a 30-cent hourly wage increase plus 7 to 8 cents an hour in welfare benefits. This would have boosted the regular drivers' $16 daily rate by about $3.00. Reports indicate the strikers are holding out for an estimated 75-cent hourly raise in wages and payments for welfare benefits. Union demands for the lumber drivers parallel those of the initial strikers.

Trend reversed

Unions hold line against state legal restrictions, claim some gains

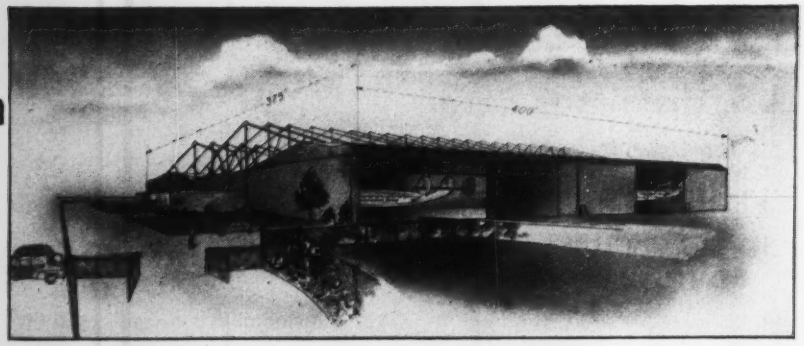
Labor unions more than held their own in the state legislatures this year—in fact they can even claim some gains. Advantages won were scattered and small, but—technically, at least—they reversed a trend toward conservative or restrictive legislation.

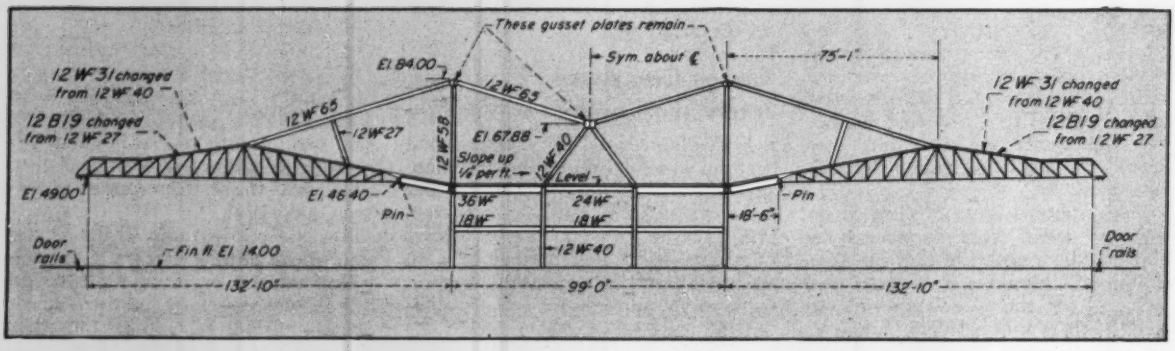
Six months ago the outlook was dark—in the union's view—judging by the number and kinds of bills introduced. Unions channeled their energies mainly into a line-holding job. Now—with all but a few legislatures adjourned—the strategy appears to have been successful.

On the positive side of the picture were these gains:

- Half-a-dozen or more right-to-work bills were beaten or mothballed indefinitely. This is the most important point in the union-lobby book since such laws forbid all kinds of compulsory membership. It can be used effectively—as in Virginia, with Supreme Court sanction—to ban peaceful picketing when the objective is to deter non-union men from reporting for work. Twelve states already have such laws; four others have related but less restrictive laws.
- About 1,000 workmen's compensation bills were introduced; some 150 were enacted. Benefits and ceilings were raised and other features liberalized. Kansas and Oklahoma joined the states that cover occupational diseases in their compensation laws, leaving only Mississippi and Wyoming without such protection.
- Statutory wage floors went up in a few places: From 50-cents to 60-cents an hour in New Hampshire and from 40 to 65-cents in Hawaii. Nevada's minimum for women and minors was raised from 50 to 75 cents.
- Oregon created a division of labor elections and set up procedures to investigate labor-management complaints.
- North Dakota repealed a law requiring unions to file financial reports. Union election procedures also were set up.
- The trend further west continued toward anti-discrimination laws. So far, Colorado, Indiana and Wisconsin are the only states in this general area with mandatory laws against inequality in employment. Kansas enacted an "educational" law and Iowa appointed a study commission to make recommendations to the next legislature.

Unusual design for hangar roof . . .





Suspender frame supports cantilever

An exposed steel suspender frame will support the cantilevered roof trusses of a maintenance hangar at International Airport in Queens, New York. The Port of New York Authority will construct the $2.7-million building for Lockheed Aircraft Service-International.

The cantilevered roof trusses will be supported at the midpoint of their top chords by an exposed suspender frame and at their inner ends by a solid-web girder projecting from the central building frame. (In design specifications, the steel contractor had the option of using a rocker or a pin at this end of the trusses; he selected a pin.) The exposed suspender system is anchored to the central building frame.

From the central suspension point, the roof trusses will cantilever 58 ft outward to the hangar doors. The roof deck is placed on these trusses. The exposed suspender system extends 75 ft outward from the central building frame to the point where it supports the roof trusses.

• **Large maintenance areas**—Under the cantilevered hangar roof there will be a 400-ft long 133-ft deep maintenance area along one side of the central building frame. On the other side of the central frame, the maintenance area will be 280 ft long and 133 ft deep. In all, the total maintenance floor area in the hangar will be 90,000 sq ft. In addition, shops and offices in the two-story central section will occupy 68,000 sq ft.

Because of the unsymmetrical maintenance areas on either side of the central building, the symmetrical suspended cantilever framework will not extend the full length of the structure. On 14 column lines, at 20-ft centers, the suspended cantilever system is symmetrical. On an additional six column lines at one end of the hangar the exposed suspender frame system will support cantilevered roof trusses on only one side of the central building frame. These asymmetrical exposed frames are similar in design to one side of the symmetrical frames.

• **Hangar door guides**—The design of guide rails for the sliding hangar doors at the outer ends of the roof trusses allows a 1-ft vertical differential displacement of the ends of the trusses without jamming the doors. On hot summer days, the steel framework of the hangar may expand enough to lower the outer end of the roof trusses 6 in. Wind acting on the underside of the hangar roof, when the 70-ft sliding doors are open could lift the outer end of the roof 6 in. To provide for this possible roof movement, steel shafts will connect doors and door guides. These shafts will be set vertically in bearings in the top of the motor-operated sliding doors and will have rollers on their upper ends that slide in tracks set under the roof trusses. When the truss moves up or down, the shaft—its rollers fastened in the tracks on the roof truss—will move up and down in the door. A sheet-metal weather guard hung from the roof truss will protect the shaft and the bearings in the top of the hangar door from rain.

• **Design requirements**—Port Authority engineers employed a suspended cantilever design for the hangar because of the saving in steel compared with other designs that could meet functional requirements. The designers believe that a great deal of money can be saved by a centralized shop serving maintenance areas on either side, as opposed to a long shop area behind a string of hangars.

A further consideration in the design of the hangar was the uncertainty of the dimensions of aircraft in the future. The new hangar will permit the entry of the highest tail assembly now foreseen for a plane. The unobstructed maintenance area will allow a wing span larger than that of our present largest commercial planes.

• **Two designs bid**—The Port Authority designed the hangar framework for riveted structural steel, but bids for

Catch fish with wire rope?

Yes, gentlemen, there's more fish caught with wire rope than ever nibbled at a baited hook. Satisfying America's appetite for nutritious seafood is a stupendous job, calling for fleets of fast, powerful trawlers that net their catches in prodigious quantities. To hold and haul in the heavily laden nets, the fishing industry annually uses millions of feet of wire rope.

There's a good chance the fish you eat comes to your table with the help of Wickwire Rope. Because, for over half a century, Wickwire Rope has "grown up" with the nation's fisheries. As in so many other activities where wire rope is used, the men who man the fishing fleets have a high regard for its strength and durability under the toughest conditions.

A YELLOW TRIANGLE ON THE REEL IDENTIFIES WICKWIRE ROPE

THE COLORADO FUEL AND IRON CORPORATION—Abilene (Tex.) • Denver
Houston • Odessa (Tex.) • Phoenix • Salt Lake City • Tulsa
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WICKWIRE SPENCER STEEL DIVISION—Boston • Buffalo • Chattanooga
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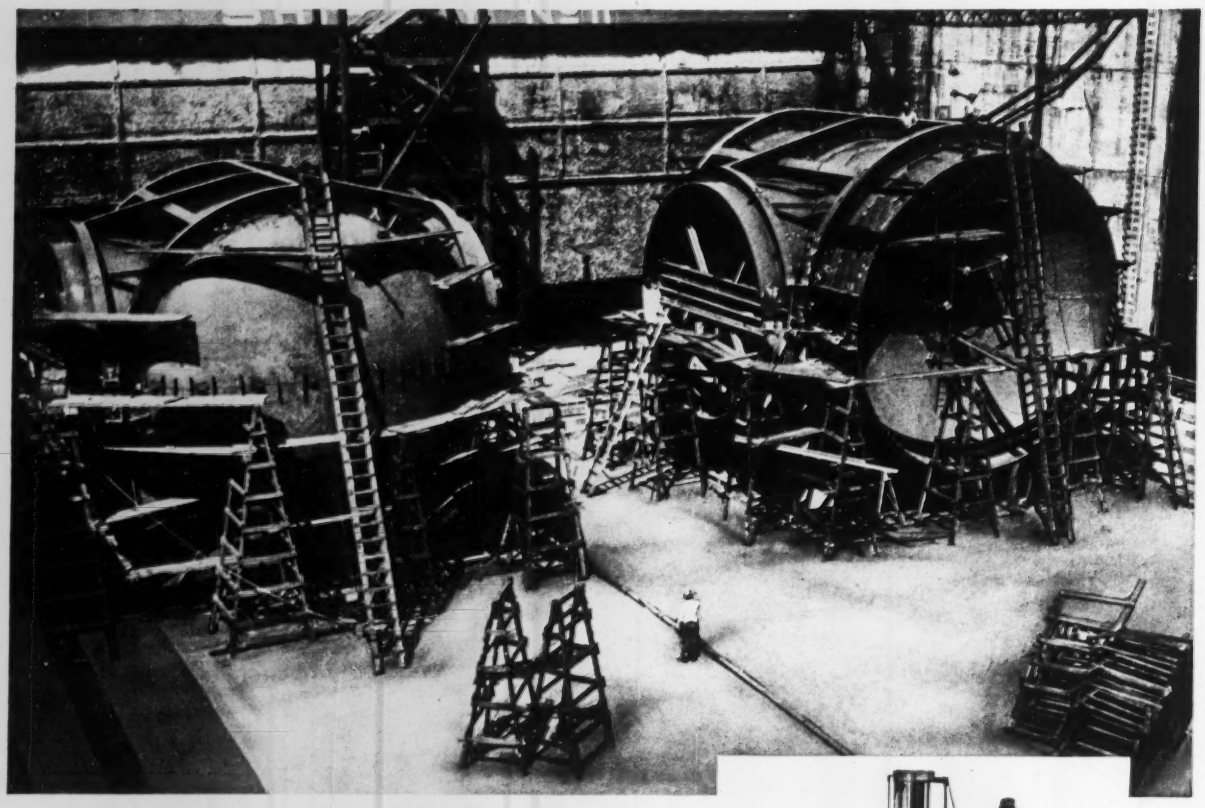
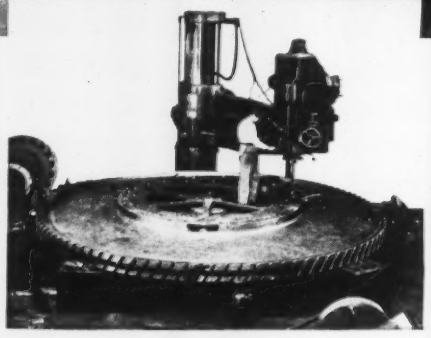
WICKWIRE ROPE

CF&I PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

1757



ASSEMBLING FLOW DIVERSION VALVES of an 8-foot supersonic wind tunnel for the Ames Aeronautical Laboratory of the National Advisory Committee for Aeronautics.



DRILLING A 25-TON FORGING . . . one of 11 alloy steel discs used in one of the two axial flow compressors which Newport News is constructing for the NACA's Ames laboratory.

Man-made Hurricanes

PUSH A BUTTON . . . That's all it will take to accelerate wind up to several times the speed of sound in a new supersonic wind tunnel at the Ames laboratory of the National Advisory Committee for Aeronautics, in Moffett Field, California.

The tunnel is designed to develop new aerodynamic information. Its heart is the "windmaker" . . . two axial-flow compressors which look like a giant tube 50 feet long and 24 feet in diameter, studded with small blades.

Because of the size of this unit, it is significant that the task of building these mammoth compressors was assigned to Newport News.

Newport News has also constructed two diversion valves, similar to huge plug valves, for diverting the air flow from one channel of the tunnel to another, as desired.

Large engineering and technical staffs, operating a plant with acres of brass, iron and steel foundries, five huge machine shops and other extensive fabricating facilities, make Newport News an ideal source for large equipment . . . *standard or special in design.*

Products ranging from components of rayon spinning machines to giant 165,000 horsepower hydraulic turbines operating at Grand Coulee, reflect Newport News' high integration of skill and production facilities.

Consult us on equipment for your present or future projects. Write today for your copy of *"Facilities and Products."*

NEWPORT NEWS **SHIPBUILDING AND DRY DOCK COMPANY**
Newport News, Virginia

both riveted and welded alternates were asked. One set of specifications—for the riveted design—was sent to all bidders. A contractor who wished to bid on a welded design determined the proper reduction in steel tonnage for the welded framework in conference with Port Authority engineers. In changing the riveted design to a welded design, a 5% reduction in total weight of steel for the hangar accrued primarily through the elimination of gusset plates from the roof trusses. However, the large gusset plates required for the exposed framework remain in the welded design.

Elimination of gusset plates reduced the weight of each roof truss by about 20%; but the members of the exposed suspenders supporting the roof trusses were not reduced in weight. The only members to be changed in size in the welded design were two beams in tension in the top chord of a typical roof truss. These tension members were changed from a beam section allowing for rivet holes in the riveted design to smaller beams, not reduced in section by rivet holes, for the welded design. (These beam changes are indicated on the drawing of the typical frame.)

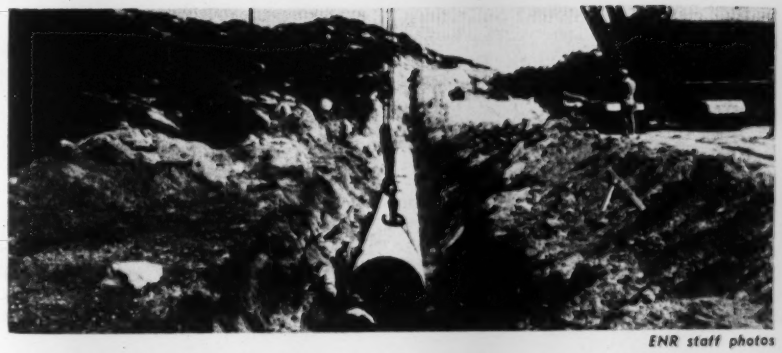
For the 34 typical roof trusses in the hangar, the saving in weight of steel, accruing through size reduction in top chords, amounted in all to less than two tons. Out of a total of 1,472 tons of steel required for the original design, 74 tons, mostly in gusset plates, were eliminated for the welded design.

• **Welding cheaper**—The lowest bid for the structural steel work, submitted by the Lehigh Structural Steel Co., was for the welded job. An analysis of the bid prices indicates that Lehigh's unit price for furnishing the welded steel was actually higher than the comparable unit price of the next lowest bidder, a bid for riveted work. However, the weight reduction for the welded design offset this price disadvantage to an appreciable extent.

Unit prices tendered by the two lowest bidders for the erection of structural steel were almost the same. The weight reduction proved so significant for this item, however, that it not only made the erection cost for the welded design lower, but more than made up for the higher cost of furnishing fabricated welded steel.

The bid margin was small: Lehigh's low bid of $475,185 on the welded design was only $3,889.50 lower than the low bid submitted for the riveted design.

Lehigh Structural Steel was awarded the contract and will start steel erection at the International Airport in September.



ENR staff photos

MORE CONCRETE PIPE—and more is being gotten out of it. This new line is designed for pressure heads up to 650 ft instead of the 500-ft head limit on the first San Diego line. Steel pipe is used only for one siphon where pressure head exceeds 900 ft.

Seven years later—

San Diego doubles aqueduct capacity

Seven years ago an array of contractors was busily engaged in building a 71-mile aqueduct to provide badly needed water for the war-expanded San Diego, Calif., area. Today, another group of contractors is just as busily engaged in installing the second barrel of the San Diego Aqueduct to keep ahead of water demand that keeps on growing.

Administration of the work is just as complicated in 1953 as it was in 1946: the Navy Department, Bureau of Reclamation, San Diego County Water Authority, and the Metropolitan Water District of Southern California are all involved. Technical improvements in the construction are few, centering around more extensive use of concrete instead of steel pipe; precasting substantial elements of vent, valve and blow-off structures; and more effective back-filling procedures.

The new work includes only 61 miles of pipeline: Seven tunnels, a regulating reservoir and a two-mile connection with the Colorado River Aqueduct were built to full capacity as part of the original work.

The aqueduct was hurried into the planning stage during World War II when federal officials and local agencies became concerned about the high water demand induced by military installations and war industry (ENR March 6, 1947, p. 64).

The project was to be built by the Navy because it had the greater percentage of federal installations in the San Diego area. When the war was over, the Navy could no longer justify the project as an emergency defense measure in view of the reduction in its local activities. However, local interests prevailed upon the federal government to permit the work to be finished because favorable contracts were already in existence.

• **Trouble in financing**—The $14-million cost of the first barrel was to be repaid without interest at a rate of $500,000 a year by the San Diego County Water Authority. (Half of this money would in turn be paid the Water Authority by the Metropolitan Water District).

(These payments were to start when the aqueduct was completed. At this writing the first barrel is still not officially finished because of two minor claims—one a condemnation proceeding and the other a contractor's claim for adjustment. When it became obvious that such claims would hold up legal completion of the first barrel, the Water Authority started payment at the rate of $250,000 a year in 1947 and on Jan. 1, 1953, started payment at the $500,000 rate.)

When the immediate need for the second barrel became clear, a question of procedure arose: With title to the aqueduct still held by the federal government, construction by local authorities would have been impossible to finance by normal bond methods. Security buyers would not purchase bonds backed up by a facility constructed by one agency on property belonging to another.

Another alternative was outright purchase. But that would have meant substituting bond financing for interest-free federal repayment. Best answer seemed to be construction of the new line by a federal agency.

Appropriations for the new work were on a different basis than they were on the original job. The first barrel had been financed by money appropriated directly to the Navy, the second barrel is financed by a special congressional appropriation specifically made for its construction. Repayment this time is over a 40-year period, with interest at 2.599%—pre-

vailing rate of government obligations at the time (April 1, 1952). The terms, thus, are comparable with Reclamation work for supplying municipal water.

Since the Navy still represented the government in all matters pertaining to the aqueduct, the money was made available to the Navy, which in turn contracted with the Bureau of Reclamation to design and supervise construction of the new work.

• **$18 million for new work**—Based on the Navy's estimate, Congress appropriated $18 million for construction purposes. It now appears the work will be completed for $16.5 million. Considering the fact that the second barrel does not include regulating reservoirs and tunnels that will total 14% of the aqueduct length, the cost increase in 7 years is evident (original work cost $14 million).

The new work provides a pipeline of 85 cfs design capacity bringing the aqueduct total to 170 cfs. However the first 32 miles has an additional 15 cfs capacity to serve a turn-off for the Fallbrook-Oceanside area, built by the Water Authority in 1947.

The first barrel was designed for 85 cfs capacity but has been carrying in excess of 100 cfs since completion in 1947—except for part of the 1951-52 water year when high run-off filled local reservoirs for the first time in many years.

• **More concrete pipe**—One difference between the new and the old work is in the use of concrete pipe to resist higher pressure. Concrete pipe was limited, on the first work, to 500-ft heads because design engineers were not certain of the action of rubber gasket type ring joints under greater pressures. This resulted in three steel siphons totaling over 9,000 ft in length.

On the new work, only the San Luis Rey siphon is steel pipe; here the head reaches a maximum in excess of 900 ft. This has saved about 2,000 tons of steel.

The saving in steel was quite significant as design work and early stages of construction were carried out during the days of strict materials controls. Shortage of steel following the 1952 steel industry strike was also a factor in the design decision.

• **Prefabricated structures**—A long pipeline over rolling country requires many vent, blow-off and manhole structures. On the original work concrete for these was poured in place. On the new line, the main elements of the structures are precast and generally take the form of a section of reinforced concrete cylinder pipe.

BETTER BACKFILLING—Consolidation of backfill around the bottom portion of pipe is accomplished by combining jetting and internal vibration using electric concrete vibrators. Both sides are consolidated simultaneously by raising and lowering boom on rubber-tired tractor.

• **Improved backfilling**—Careful attention is paid in the current work—as it was in the original—to backfilling around the bottom part of the pipe. However, improved methods have been developed.

The ENGINEERING NEWS-RECORD article covering the original work had this to say about backfill: "On relatively level stretches, pneumatic hand tampers on slightly moistened soil proved to be the most satisfactory compaction method. On steeper slopes various combinations of puddling, flooding, and jetting and poling were tried and, although the desired results were achieved, no outstandingly satisfactory method was developed."

On the new work the contractor is required to use the "saturation and vibration method." This involves jetting and use of immersion-type vibrators long enough to reach the bottom of the fill and strong enough to consolidate the mass and compact it well.

Heavy duty concrete vibrators have been used by the contractors for this work. However, that is to a certain extent experimental and vibrator manufacturers are not convinced that such work is prime use of their equipment.

In this consolidation, the vibrators are mounted on arms of a rubber-tired tractor unit. The tractor operates on top of a pipe and the vibrators with their accompanying jets are lowered into the backfill on each side.

This type of consolidation requires imported backfill material in many cases, since the fill must be cohesionless, sandy or sandy-gravel material. The "saturation and vibration" method will not work satisfactorily on a clay-type soil.

One other saving on the new work as compared with the old is the availability of water. It was a major problem 7 years ago to get the necessary water to test the pipeline and for other construction purposes. However, now water is available from the adjacent existing line in virtually unlimited quantities.

• **Credits**—Administration of the new construction is under the direction of Capt. A. I. Flaherty, CEC USN, public works officer of the Eleventh Naval District.

Design was done by the Bureau of Reclamation in the Chief Engineer's office in Denver. Construction is being supervised for the USBR by Jean Walton, project engineer. His first assistant is J. D. McCoy who directed location surveys for the new work and won a federal commendation in the process (ENR Jan 15, p. 64).

Richard S. Holmgren is general manager and chief engineer of the San Diego County Water Authority succeeding the late J. L. Burkholder.

SAN DIEGO AQUEDUCT

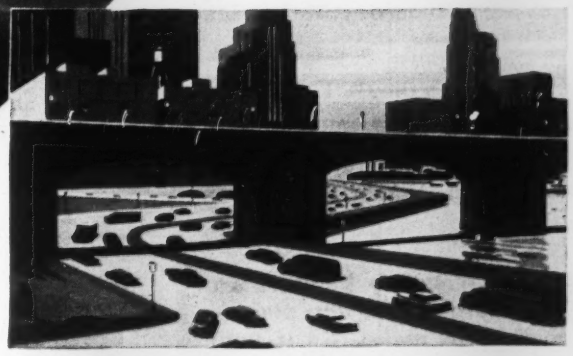
(Contract data)

Contractor	Amount	Completion Date	% Complete May 1, 1953	Pipe size (in.)	Pipe length (ft.)
R. V. Lloyd	$2,574,800	Sept. 23, 1954	41	75	48,000
Engineering Constructors	2,065,022	Sept. 23, 1954	59	60	32,130
				48	20,900
Johnson-Western	3,192,826	Sept. 23, 1954	31	60	45,596
				48	16,667
Artukovich & Miller	671,380	Jan. 11, 1954	10	*48	6,874
S. A. Healy	6,798,101	Dec. 17, 1954	2	48	122,478
				54	28,894

* Steel pipe, all other is concrete.

When there's a BIG bearing job to do...

From modern turnpikes to improvement of small back roads, America is on the move to change the face of our highways. It means that construction equipment and component parts have a bigger, tougher job to do. Keeping pace with this job are Hyatt Roller Bearings. Specified throughout the years by leading manufacturers of road building and maintenance machinery, Hyatts are still leading the way—meeting these greater demands with advanced methods of manufacturing, modern heat treatment and rigid inspection from raw materials to finished bearings. As a result, Hyatts virtually eliminate friction, reduce wear, require a minimum of attention and help provide longer machine life. There's a size and type of Hyatt Roller Bearing for every construction equipment application. Hyatt Bearings Division, General Motors Corporation, Harrison, N. J.



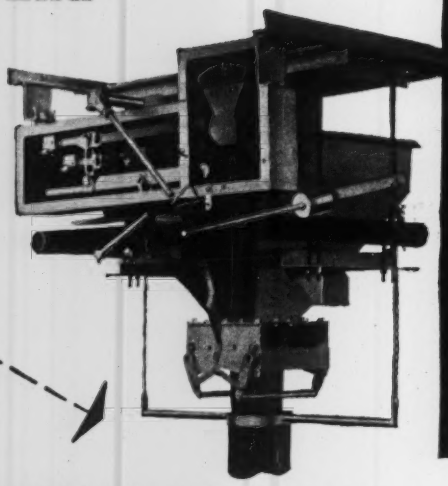
HYATT ROLLER BEARINGS

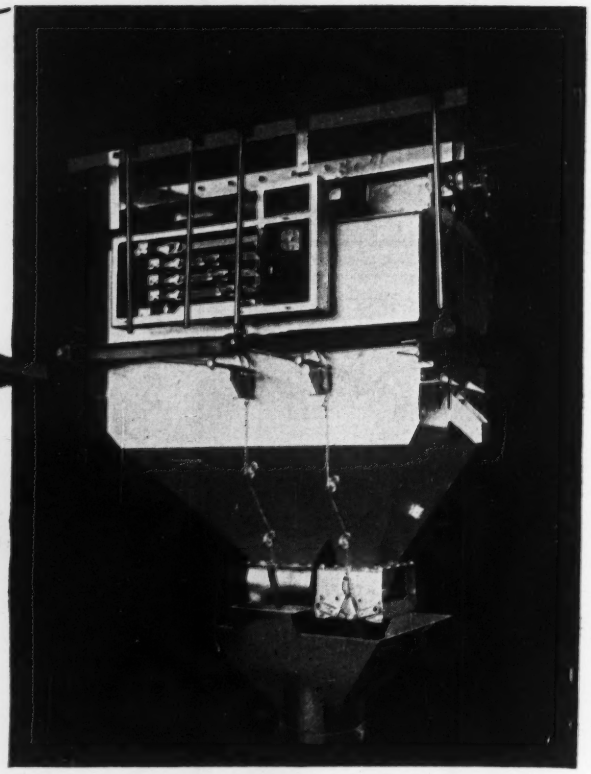
head,

heart and

hand

is the





BUTLER Weighing Batcher

Head? Yes, because whether it's for a Roadbuilders' Plant or an immense Central Mixing operation, a BUTLER Batcher is a fast-acting robot that virtually thinks for itself. The fully automatic, pushbutton units do *all* the thinking, faster and more accurately than a man.

Heart? Yes, because it's the BUTLER Batcher that keeps materials in smooth-flowing circulation with a pulse-like, never-failing regularity — batch after batch, month-in and month-out.

Hand? Yes, because a BUTLER Batcher "hands-out" batches to your trucks with split-pound accuracy and at a speed that keeps them humping to keep up.

So, whether you need a completely automatic, vastly complex, mistake-proof, pushbutton Batcher to weigh out as many as 8 materials . . . or a combination Batcher for cement and aggregate . . . or a Batcher for 3 aggregates . . . or fast-stepping, high production Batchers for your Roadbuilders' set-up — it's profitable and wise to insist on the BUTLER nameplate.

BUTLER Weighing Batchers are readily installed on any plant — regardless of make. So if your batching equipment is getting on the old and jaded side, give your plant a new and active head, heart and hand — a BUTLER Weighing Batcher — and watch your production soar.

BUTLER BIN COMPANY

WAUKESHA, WISCONSIN

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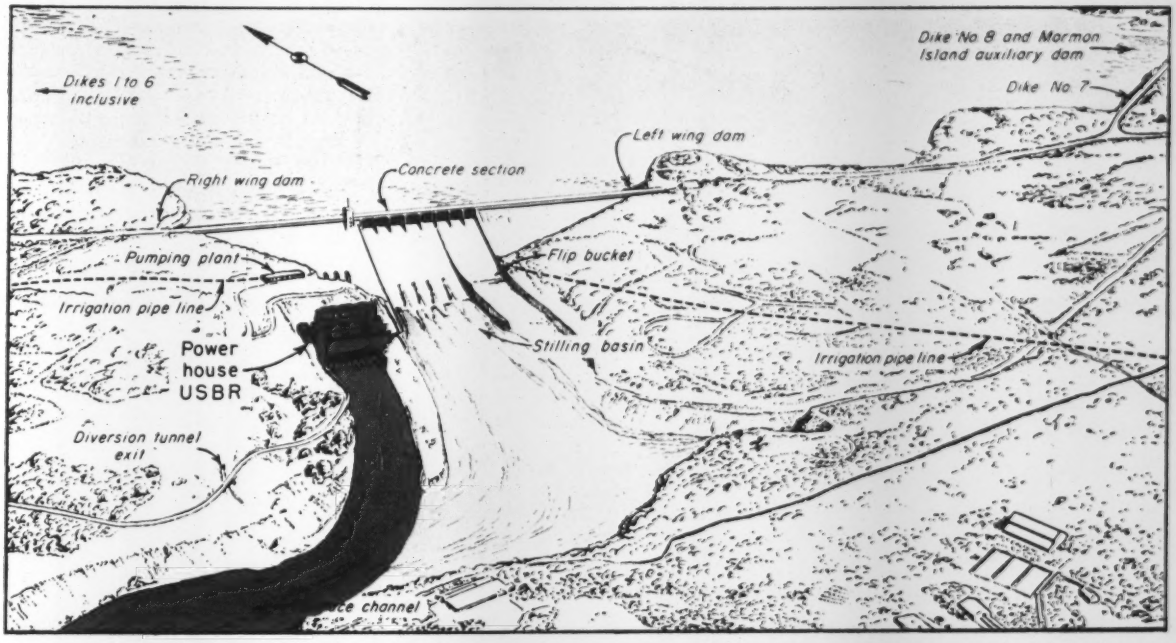


FOLSOM DAM construction work is divided between the Bureau of Reclamation and Corps of Engineers, the former building the power plant and tailrace channel (shaded) and the latter, the remainder of the project.

Dam building in the gold country

Mountain torrents that through geologic time have built the gold-bearing outwash plain east of Sacramento, Calif., soon will be tamed by Folsom Dam, a concrete and earthfill barrier with a gross length of 4.4 miles.

The dam's objectives—flood control, hydropower and supplemental irrigation water—are fully as valuable as the gold that has been wrested from Nature in this American River watershed.

And Nature isn't making it any easier for the dam builders than she did for the gold seekers. Flash floods have ripped out cofferdams, and seamy foundations have brought about extensive grouting programs. A further complication, though an amiably-administered one, is the presence of two construction agencies on the job. Most of the work is being done by the U. S. Army Corps of Engineers, but nestled at the dam's toe, on the right bank of the river, is a power-plant contract owned by the U. S. Bureau of Reclamation. (U.S.B.R. also has Nimbus Dam, 4 miles downstream, which will control the afterbay below the powerhouse.)

• **Eastern contractors**—Main dam contractor is a joint venture of Savin Const. Corp., East Hartford, Conn., and Merritt-Chapman & Scott, Inc., New York. These eastern companies caused a minor sensation when in 1951 they underbid experienced western dam builders $3 million to get the $29.5-million contract for the concrete spillway section, its earth wing dams and three saddle dikes. Six other dikes already had been built.

Power house and outlet channel contractor is Guy F. Atkinson Co., South San Francisco. This work is separated from the dam: at the points where three penstocks emerge from the dam, by a retaining wall between the power house area and the stilling basin, and by some earth embankments. Delineating work within earth embankments has some intrinsic drawbacks (for instance, considering earth's angle of repose, the contractor who does his side first has to place extra dirt), but these can be adjusted by inter-agency cooperation in making plans and specifications, and by contractor cooperation in making schedules, as long as there is good will among all parties. This is the case at Folsom Dam.

FOLSOM DAM

Gross length, ft	23,300
Existing earth dikes, No	six
New dikes, wing dams, No	five
Concrete dam	
Length, ft	1,400
Height, ft	340
Spillway cap., cfs	567,000
Reservoir	
Mean annual runoff, af	2,875,000
Peak flow, record, cfs	210,000
Gross storage, af	1,000,000
Active storage, af	888,000
Flood control reserv., af	400,000

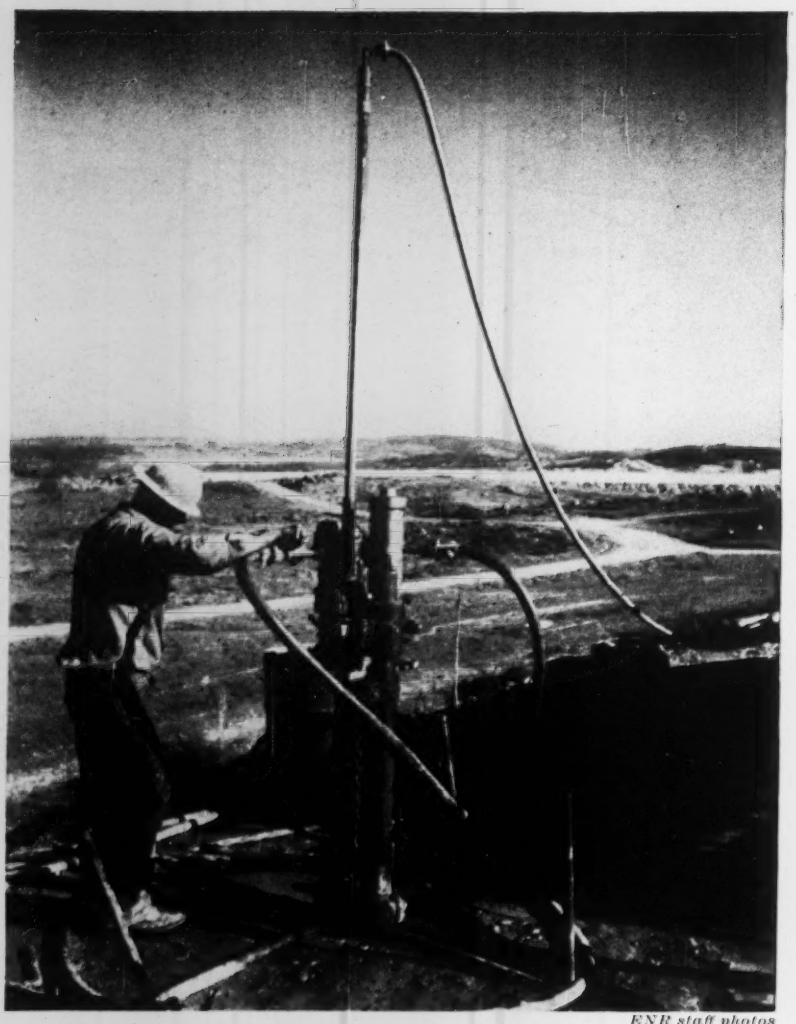
• **Foundation fault**—Complicating the construction program was discovery a few months ago of a left-bank fault in the foundation for the dam's concrete structure. As a matter of fact, the fault extended under concrete already poured—some concreting had been permitted in the abutment sections while high water threatened the river bed sections.

A tunnel was dug to follow the fault up under the concrete. Fortunately, the seam was found to peter out under the first monolith.

The tunnel will be extended 150 ft up and down stream and later filled with concrete. Where concrete had not been placed, additional excavation down to the foot wall of the fault will be required, involving 70,000 cu yd of additional excavation and 50,000 cu yd additional concrete. Besides that, more grouting will be carried out to guarantee the foundations.

To accomplish the excavation indicated, the contractor has had to dismantle two towers of his concreting trestle. Two towers not in the fault area previously had been washed out by a cofferdam failure.

• **Cofferdam washouts**—The diversion



ENR staff photos

DIAMOND DRILL completes grout hole under dike after fishtail percussion drill, aided by bentonite drilling mud, has penetrated dike's compacted fill.

plan for Folsom was not predicated on the expectancy of carrying through a flood season. Had an unseasonably dry year been encountered, perhaps the diversion tunnel, driven through the right abutment would have accommodated the flow. However, as it turned out, the upstream diversion cofferdam was washed out twice during the 1953 flood season—once in January and again in May (ENR Jan. 22, p. 24, June 4, p. 24). The washouts together with the delay due to the fault will set back the contractor's schedule somewhat. So far, however, the delay has not been serious enough to postpone ultimate completion of the project by the December, 1955, target date. But there was hope that some storage could be made available for power generation in mid-1954. Now early 1955 is a more likely date.

The cofferdam washouts have affected Bureau of Reclamation work too. Each time the cofferdam has gone out, the powerhouse construction has been flooded and the cofferdam at the Nimbus Dam work downstream has been overtopped. Besides that, these two USBR jobs were inundated by high flood flows a third time in April.

The Folsom contractor might not have lost the second cofferdam had he delayed replacement until all flood danger passed. But because a substantial amount of work must be accomplished during the 1953 construction season he deemed early replacement worth while.

There may be some discussions as to liability between the powerhouse and the dam contractors. However, the official Corps of Engineers attitude is that the matter is up to the contractors themselves.

• **Silver lining**—According to main-dam contractors, the cofferdam washout had its brighter side. The 150,000 cu yd removed from the hole was used for earthfill dike pervious fill—and it was closer to the dike work than river-bottom borrow areas from which part of the fill regularly is taken.

An additional portion of pervious fill is being taken from gold dredge tailings, which blight thousands of acres in the dam's vicinity.

• **Gold in that contract**—Gold also enters into the contract, there being a provision that 15% of all gold found during the work shall be turned over to the U. S. Government. In his aggregate pit, about three miles downstream from the dam, the contractor has equipment for separating gold, but it hasn't yielded much yet. The big payoff, if any, is expected when operations reach the bottom of the pit, where the heavy metal is more likely to be found.

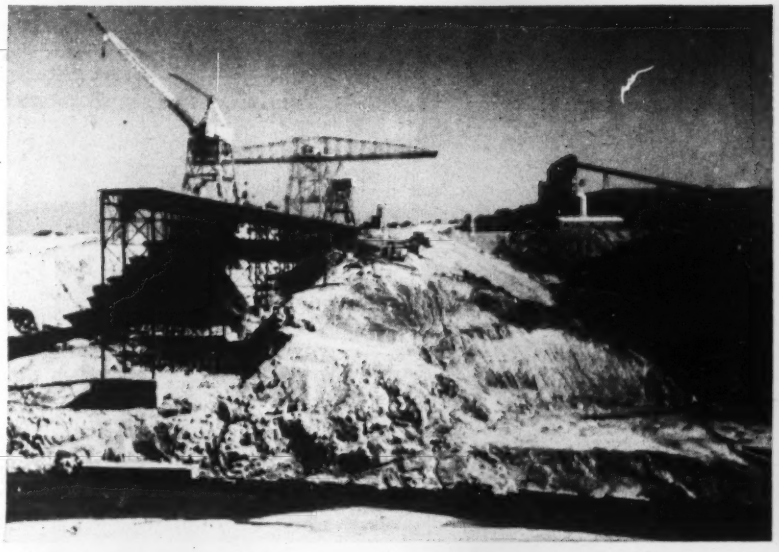
(Site excavation for Mormon Island Dam, the largest of Folsom's dikes, uncovered candles, broken picks and decayed mine timbers at bedrock level, where Forty-Niners had burrowed under the gravels for washed-down concentrations of gold.)

Of first interest at the aggregate pit, however, is the preparation of materials for the 1,000,000-cu yd concrete dam. Sized aggregates go by truck upstream along the right bank to a dumping point, from which they are conveyed on a suspension bridge to the left bank, thence to the concrete plant. This plant is similar in its batching, mixing and cooling features to plants on other recent Army Engineer projects, the only unusual aspect being the cooling plant. Designed to furnish enough ice, cold water and cold air to chill (less than 50 deg F) 250 cu yd of concrete hourly during the Central Valley's scorching summer days, the plant is said to be the second largest refrigeration installation ever made west of the Mississippi.

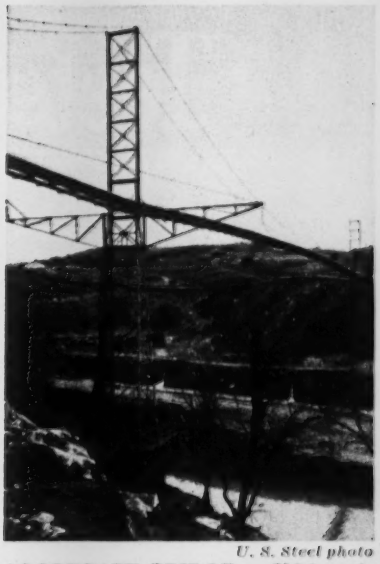
Rail cars shuttle concrete buckets to the trestle, where they are picked up for placement by whirler cranes or a large hammerhead crane. (This crane was used at Grand Coulee Dam and at Bull Shoals Dam.)

• **Impervious material**—Equipment also has a big material-handling task on the dikes, the total volume of embankment being 13,400,000 cu yd.

About a third of the volume is impervious material, which at Folsom means compacted decomposed granite. Large deposits of DG, as it is called, lie within a mile of most of the dikes, so the haul problem is not great. Moreover, DG handles fairly easily, requiring only loosening by rooter before it is dug by elevating loader or scrapers.

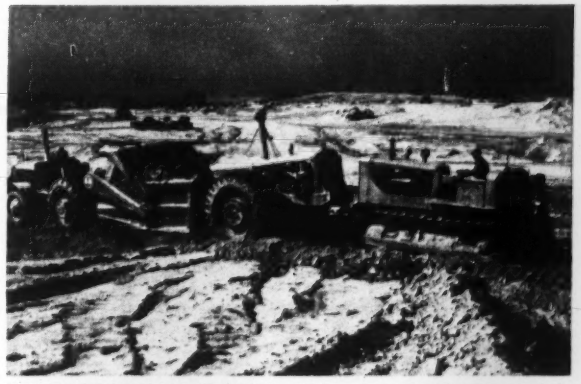


CONCRETING TRESTLE lost two towers when cofferdam went out; two more (shown here) had to be removed when fault was discovered in left-abutment rock.



U. S. Steel photo

AGGREGATE BRIDGE, a 500-ft main span structure, carries belt conveyor.



BORROW EXCAVATION for Folsom's earth dikes is good digging after rooter loosens decomposed granite. At left, two-engine scraper is aided by tractor, for fast loading; at right, elevating loader fills bottom-dump wagon.

Decomposed granite is a hydrothermally altered material having a dense grain-size curve. Particles passing a 200-mesh sieve range from 16% to 35%. The material weighs about 150 lb per cu ft in its undisturbed state, and compacts to an average dry density of 125 lb per cu ft under wheeled equipment and a 50-ton compactor. This compaction gives satisfactory imperviousness when moisture is properly controlled.

• **Sprinklers dampen borrow**—Normally, DG is too dry in the borrow pits, so water must be added. A portable aluminum-pipe sprinkler system with nozzle outlets spaced 40x40 ft places enough water on an area to bring moisture up to 8% or 10%. Usually this takes two or three days. Then three more days are allowed for the water to seep downward and distribute itself uniformly throughout the volume to be excavated. Optimum moisture is 8%; water is applied to give a higher moisture content during hot weather, when evaporation is high.

Fills also are sprinkled. As previously noted, earthfill filter material comes from river bottom deposits and gold dredge tailings. Riprap comes from powerhouse excavation, which Atkinson stockpiles and Savin-Merritt picks up. Earthwork is scheduled for completion in 1954.

• **Grouting through fill**—At first it was thought that DG under the earth dikes would be tight enough to hold the reservoir, but later investigations made such a conclusion doubtful, and Army Engineers decided to put grout curtains under the dikes. Where dikes already had been built, making grout holes through the fill was a difficulty that had to be overcome. Drilling with water would wash the DG and cave the holes. The problem was to keep new holes open until a grout pipe could be socketed in the underlying rock. Straight bentonite drilling mud was the solution. The mud, having a high specific gravity, holds the hole open by hydrostatic pressure. It does not permeate the surrounding material, so there is no tendency to wash out. And, of course, it carries the cuttings upward, out of the hole, as it is circulated during drilling. The drill found to be best in the compacted DG is percussion rig with a fishtail bit.

Management—Folsom Dam is a project of the Sacramento District, U. S. Army Corps of Engineers; Col. C. C. Haug is district engineer, Lt. Col. E. G. Peacock is assistant district engineer. Charles F. Beatie is acting project engineer, assisted by Sam Burks, field engineer on the concrete dam, and W. G. Clark, field engineer on earthfill. For Savin-Merritt, D. E. Stinson is project manager; L. G. Sumner is project engineer.

Tests Prove

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Clay Pipe is also *completely* safe from acid liquids, strong detergents, or the corrosive substances produced by decaying waste from garbage disposal units. Clay Pipe is *guaranteed for 50 years.*

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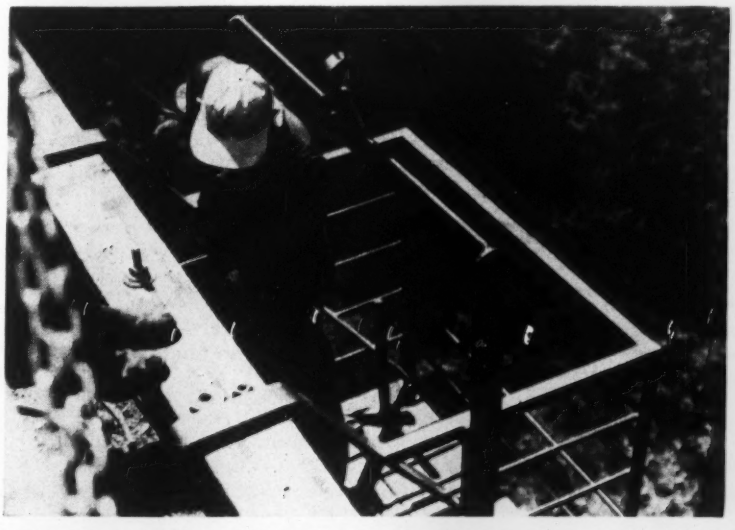
C-1053-J

ISLAND CAB leaves room for platform 20-ft long on this 1-ton truck. Small welding shop modified a manufacturer's standard model.

Truck platform extended

Contractors who have a lot of miscellaneous hauling to do around the jobsite will be interested in the way a lumber dealer in Oregon City, Ore., modified a 1-ton truck. The operation was done by E & H Welding Co., also of Oregon City, which cut the cab of a standard truck down to one-man capacity (it's called an "island type" cab, after the island superstructure on an aircraft carrier.)

With changes in the truck frame this left room for a platform 20 ft long on the right side and 12 ft long behind the cab. Platform height is 32 in., low enough so the driver can handle sacks of cement, bundles of shingles and other items without help. The long side of the platform is handy for carrying ladders, lumber and reinforcing steel.



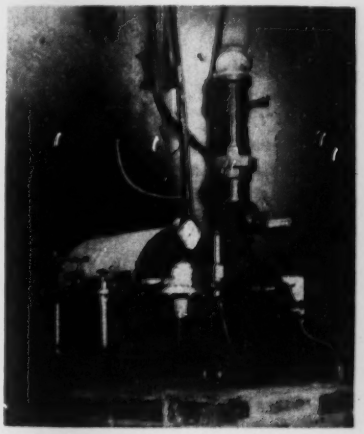
PAINTING AND MAINTENANCE of wooden bridges has been simplified by the Idaho State Highway Department with this job-built cage scaffold that is suspended over the side of a bridge from a maintenance truck winch. Safety hooks fasten onto the bridge as a precaution against winch or cable failure. State Highway Engineer Earle V. Miller said that the cage has considerably reduced the time required to paint or inspect bridge structures, with two men replacing the four formerly needed to move other types of scaffolding.

Fire tube water tank for winter concreting

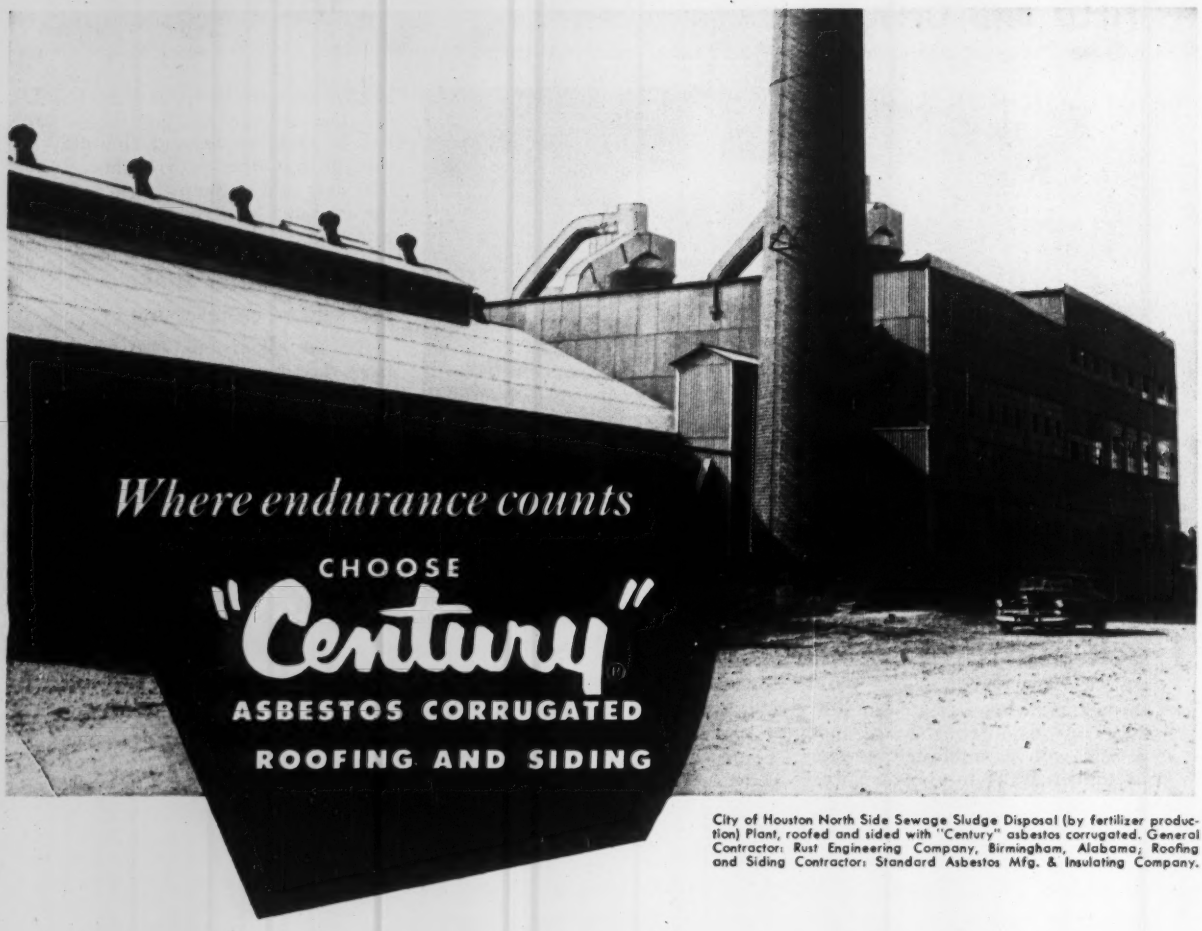
To get plenty of hot water for truck-mixed concrete, the general superintendent of Wel-Don Concrete Corp., Westfield, N. J., devised an efficient fire-tube heating tank, of 20,000-gal capacity. The tank is 32 ft long by 10 ft dia. Main firing tube 12 in. dia runs the length of the tank and manifolds to two 10-in. return flues. A commercial oil burner is located as shown at the intake of the main tube. Having a 3-hp blower and a ¼-hp pump, with automatic controls it provides plenty of heat to support the plant's merchandising capacity of 750 cu yd of concrete per 8-hr day. Maximum temperature of 160 deg., maintained when weather is coldest, takes 12 gal of oil per hour, with intermittent operation adding up to about 5 hours of burning daily.

The tank is insulated with 3 in. of block magnesia and asbestos cement with wire reinforcing. Tank ends are left uninsulated to heat the tank building. Water heat loss during the night shut-down is 4-10 deg.

This is the only heating used in the plant; any frozen lumps in sand or coarse aggregates are thawed by the hot water when it is batched into the trucks.



WATER HEATER—Mounted on firebrick pedestal, this burner blows heat through flues in concrete plant's hot water-tank.



City of Houston North Side Sewage Sludge Disposal (by fertilizer production) Plant, roofed and sided with "Century" asbestos corrugated. General Contractor: Rust Engineering Company, Birmingham, Alabama; Roofing and Siding Contractor: Standard Asbestos Mfg. & Insulating Company.

Long, long, trouble-free service is a feature of "Century" asbestos corrugated that makes it the ideal roofing and siding for many types of structures.

"Century" corrugated is made from asbestos fiber and portland cement, and so combines the advantages of both materials. It is strong, dense and tough. It *cannot* burn, rot, or corrode. It resists weather, vermin, and insects. And—here's an especially well-liked feature—it needs practically no maintenance during its long life, and it *never* needs protective paint. But that's not all!

"Century" asbestos corrugated is made in standard length sheets up to 12 feet that are easy to handle and store, easy to cut and fit, easy to erect. When TOPSIDE* Fasteners are used, no scaffolding is needed within the building, thereby saving additional time and money.

All these outstanding advantages make long-lived "Century" asbestos corrugated sound like a premium-priced building material. Actually it is one of the most economical materials you can specify!—low in application cost, low in maintenance expense.

Before you build, modernize, or expand a plant, get all the details on "Century" asbestos corrugated! We shall gladly send you complete information.

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MUNICIPAL

All-purpose building planned for D.C.

Security Square will combine bus terminal, heliport, garage, offices and bomb-resistant storage vaults

A $70-million project called Security Square is going to give downtown Washington a combination garage, bus terminal, office building and bomb shelter.

Dreamed up by Oscar Beasley, Sr. and his son, Oscar, Jr., both local industrial engineers, the building will be privately financed, although the government will be depended upon to use its vaults and offices.

The bottom two levels underground will house a self-contained unit of vaults and offices that will be completely waterproof and bomb proof. They will have their own electrical, water and air supply so that this unit can operate independently in case of disaster. It is projected as a government nerve center in case of atomic attack.

Above this will be two levels of underground parking space to accommodate 1,800 cars. A bus terminal comes above the garage.

The ground level will provide 240,000 sq ft of shopping space. Above this is another floor for bus traffic which, with the underground bus terminal, can handle 360 busses an hour.

Five floors of office space, to accommodate 15,000 workers, complete the structure. The roof is planned as a heliport to offer helicopter service to the local airports. Baltimore people are interested in this feature, since it lends support to their arguments for using their Friendship Airport to supplement Washington's National Airport instead of redeveloping the Army's Andrews Field. Other groups have expressed interest in a project to set up helicopter commuter service from suburban areas.

Parsons, Brinckerhoff, Hall and MacDonald, a firm hired to study the project, has filed a report generally conceded to be favorable with the District of Columbia's redevelopment land agency. This group has the power under the redevelopment act of 1945 to condemn the property needed and to resell or lease it to a developer in order face-lift the area and raise real estate values and tax revenues.

Security Square will be similar to the New York Port Authority bus

Port modernization on Pacific Coast

Port of Portland, Ore., has new $3.5-million drydock facilities at Swan Island. They include a 1,087-ft pier (lower right), two 14,000-ton capacity drydocks, an outfitting pier, a contractors' shop and storage building, a machine shop, and a Port of Portland office building (to left of largest building, which is the former shipyard steel assembly building).

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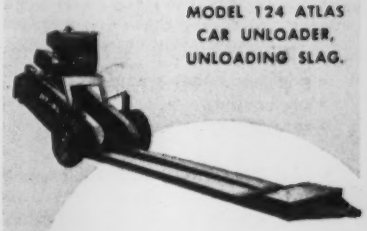

Atlas Car Unloaders are giants for performance! They have earned a reputation throughout the country for efficient and reliable material handling operations with exceptionally low operating and maintenance costs.

Please send me your bulletin on the Model 124 Atlas Car Unloader.

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ATLAS CONVEYOR CO.,
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Briefs from the YEOMANS GUARD

A Mid-West Foundry Distributes Core Sand By "Transporter" . . . What's Your Problem?

Very likely you've never thought of a pneumatic ejector as a device ideal for handling bulky, heavy, hard-to-handle items too tough for centrifugal pumps or mechanical conveyors.

For instance—

• in the foundry of a leading automotive manufacturer, a Yeomans "Transporter" set-up distributes prepared core sand in measured batches to many core-making stations: a simple, highly ingenious system *controlled at a central panel by one man.*

The "Transporter" is entirely automatic; ideally clean—self scavenging, no messy maintenance; and safe. It rates careful consideration—for

- packing house wastes
- paper pulp
- tannery wastes
- cannery wastes
- food processing • sugar, bagasse
- powdered coal, ashes
- screenings, sludge . . . and others

It's inexpensive—to install, to operate, to maintain.

Please send "Transporter" Bulletin

Here's what *you get* . . . when you install a YEOMANS PUMP

This patriarch's biography reads as follows:

- installed in 1912
- in the Ansley Hotel, Atlanta, Georgia
- a duplex bilge pump to handle drainage
- repairs: only recorded service is replacement of vertical thrust bearing early in 1953

Any Yeomans user must indeed find vast satisfaction in this exciting proof of his sound judgment; and if you think we are proud of such equipment bearing the Yeomans name, you are absolutely right.

Contemporary descendants of those magnificent "old timers" are Yeomans Heavy Duty Bilge Pumps and Screenless Ejectors—and as fine equipment as money can buy.

Send Bulletin 3-8000

Makes Pumps Last 12 Times as Long . . .

Any device that multiplies the life of mechanical equipment by 12, rates "time out" for study. "Lubri-Vac," one of our own developments, does just that for vertical wet pit centrifugal pumps—

- by providing positive lubrication of the radial bearing, Lubri-Vac has reduced bearing failures and pump servicing by 95%—

which you'll agree is a remarkable achievement. The "Lubri-Vac" feature has greatly broadened the market for the vertical wet pit pump, noted for its efficiency and durability.

Our figures are based on a three-year analysis of field reports. We claim to be authorities—because Yeomans designed the first vertical wet pit pump ever built, and has been building them ever since.

This Lubri-Vac story is too long for telling here. There's a bulletin worth the attention of every pump user—sent on request.

The Yeomans Guard, published several times a year, is a compendium of news and useful information covering the pumping of materials and the treatment of wastes, both domestic and industrial. We shall be pleased to send you the current issue if you'd care to have it. Ask your local Yeomans Representative—listed in the telephone book yellow pages under "Pumps"—or write direct.

YEOMANS BROTHERS COMPANY

1999-1 N. RUBY STREET, MELROSE PARK, ILLINOIS

Manufacturers of: Centrifugal Pumps and Pneumatic Ejectors for Buildings, Municipalities, and Industrial Applications, and a Full Line of Waste Treatment Equipment.

terminal. The success of the New York venture has given added impetus to the Washington proposal.

Money for the building has been guaranteed by an unnamed insurance company. It has been announced that the Bank Building Corp., of St. Louis, Mo., has a half interest in the project.

Negotiations with the government are under way for the use of the underground vault and some of the office space. Also, applications for space in the shopping area are already coming in, probably due to the success of stores in the New York terminal.

The block to be razed is in the center of the downtown shopping area. It has been described by the redevelopment land agency as blighted and a good subject for an overhaul.

While the project is still going through the mill for approval, no difficulties are foreseen by its backers. They plan an October first starting date.

Girard, O., leads the way to cleaner stream conditions

Tempest still prevails in the Ohio River area over the pollution control actions of the Ohio Water Pollution Control Board of the State's Department of Health (ENR June 18, p. 46).

• **Big town—big problem?**—While Youngstown officials, facing state prosecution for stalling on a proposed $10-million disposal plant, are planning application for an extension of the city's permit to dump raw sewage into the river, the town of Girard (pop. 10,113) quietly passed a $1-million bond issue to finance a sewage disposal plant.

• **Little town—big solution**—Girard, becoming the first community in the Mahoning River Valley to act on checking pollution in that stream, passed the measure just two days before the expiration of their raw-sewage dumping permit.

New debate sprang up when the State House of Representatives passed a bill exempting villages from the clean-streams law until January 1, 1956. The passage of the bill when it is presented to the Senate is said to be doubtful, primarily because of the presence of the author of the law, Sen. William H. Deddens.

Representatives Reckman and Hiner claimed that the moratorium was a stall, and that at the end of the period more applications for extension would be submitted.

Peace plan for Los Angeles housing wrangle meets mayor-council approval

The new mayor of Los Angeles, former U. S. Rep. Norris Poulson, and the new city council have reached agreement on a possible way out of the city's hassle over its $110-million-plus housing program.

Mayor Poulson proposed, and the council adopted by a 13-1 vote, a plan for completion of the eight projects already begun, or for which contracts have been let, and abandonment of the three remaining projects out of the original 11. Their sites would be turned over to the Community Redevelopment Agency.

This would cut the program by about 60%, since the three unstarted projects are by far the biggest in the program. They are also the most controversial, containing a number of 13-story structures attacked by public housing opponents as potential tenements.

The mayor noted that his plan would necessitate renegotiation of the contract between the city housing authority and the federal government. But he said that talks with Sherman Adams, presidential assistant, and HHFA Administrator Albert Cole had convinced him such renegotiation was possible.

Poulson said his Washington conferences had convinced him that the federal government could be persuaded to assume expenditures to date for planning, administration, surveys and the like on the three sites—expenditures amounting to approximately $6 million.

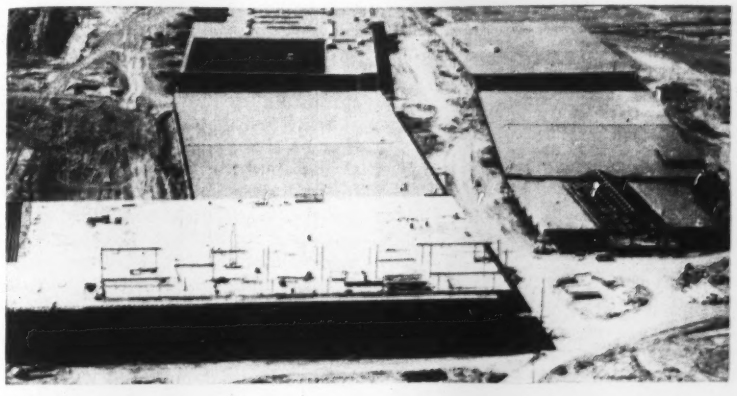
The council followed the mayor's suggestion that it pass a resolution calling on CHA to begin talks with the Public Housing Administration immediately aimed at the revised agreement.

It came as something of a surprise to city hall observers that only one of the pro-housing councilmen voted against the mayor's plan. Only the week before pro-housing and anti-housing factions had been battling ferociously over appointment of a successor to Ed J. Davenport, vehement anti-houser who died June 24.

In order to postpone a vote until they received two reinforcements among incoming council members July 1, the pro-housers vanished for the two last days of June. The remaining councilmen, unable to act because of lack of quorum, had the full police department on the trail of their missing fellows.

When the new council met with full membership July 1, there was a 7-7 deadlock between "conservative" and "liberal" candidates for council president. A vote shift gave the victory to the liberals, and it was expected that this might mean appointment of a pro-housing man as Davenport's successor and trouble for Poulson's plans to curtail the housing program.

As of last week, however, no suc-



Shopping center will have 40 tenants

Suburban shopping facilities aplenty will be available next spring upon completion of this $10-million merchandising center at Fairview Park, on the outskirts of Cleveland, Ohio. The project, being built on a 47-acre tract, will have room for 40 tenants. H. K. Ferguson Co., of Cleveland, is the builder.

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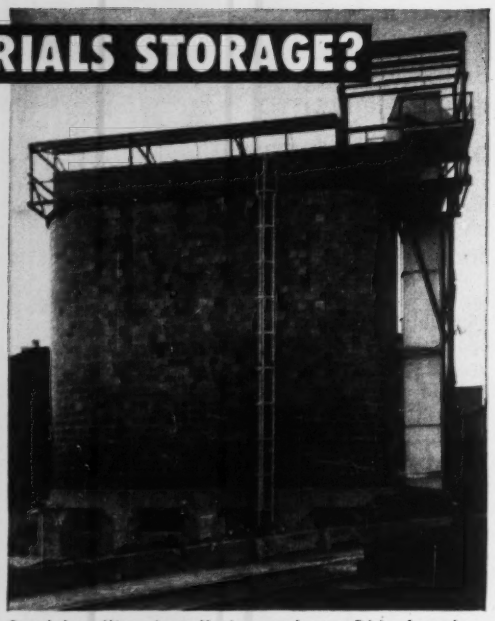

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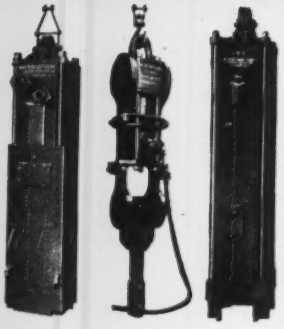

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cessor had been named, and it appeared from the vote on Poulson's proposal that the major battles over housing were over, at least within the council.

The CHA's stand might be a different matter. First reaction from George A. Beavers, CHA chairman, was that while the agency would explore the Poulson plan thoroughly, he doubted that "representatives of other states would be willing to assume what is Los Angeles' responsibility." He also brought up several legal questions about the plan.

A surprise visit by City Housing Authority Director Howard Holtzendorff to the city council brought the housing controversy another step toward settlement.

Holtzendorff read an official communication from CHA saying that the agency was ready to start discussions with city and federal officials aimed at modifications along the general lines suggested by Poulson. CHA said it had always been ready to abandon all or any part of the program "provided the . . . applicable provisions of federal and state law were complied with."

After Holtzendorff's appearance, a meeting of council, city, and CHA representatives was held in the mayor's office.

Toledo advertises for bids to construction of new airport

City Manager Arnold V. Finch, of Toledo, has announced that bids for the major construction of the city's airport will be opened July 28. The contracts involve the construction of a sewage treatment plant, terminal and service buildings, fencing, and the grading and paving of the runways, aprons and taxiways.

Finch estimates that the construction of the buildings will take about a year, but the paving schedule calls for an average placing of 5,000 sq yd per day until the 326,000 sq yds of runways, aprons and taxiways are in place sometime in November.

Work under previously let contracts for well drilling and clearing and grubbing of the site is progressing according to schedule, it is claimed.

The terminal building, with its accommodations for a coffee shop, a bar, a restaurant and a nursery on the first floor, is designed with a wall of windows facing the field. Designers also provide for ample office space, a four-level control tower and an underground conveyor for baggage.

C of E hears shippers urge enlarged Baltimore channel

A five-hour hearing conducted by Col. Reginald R. Whitaker, district engineer for the Corps of Engineers, gave leading shipping interests, ship operators, city officials and others an opportunity to recommend channel improvements for Baltimore recently.

• **Industry on move?** It was claimed that Baltimore ship traffic will continue to increase, due primarily to the movement of industry to the southeastern states, and the consequent growth of Baltimore as a center of industrial shipping.

E. K. Bryant, engineer representing the American Merchant Marine Institute, testified that ore ships capable of carrying 63,000 tons of cargo are now under construction, and will certainly trade in Baltimore, port facilities permitting.

• **Could be—AMMI**—Proposals call for increasing the depth of the channel from 39 ft. to 42 ft., and the widening operation to alter the 600 ft. width to a minimum of 800 ft.

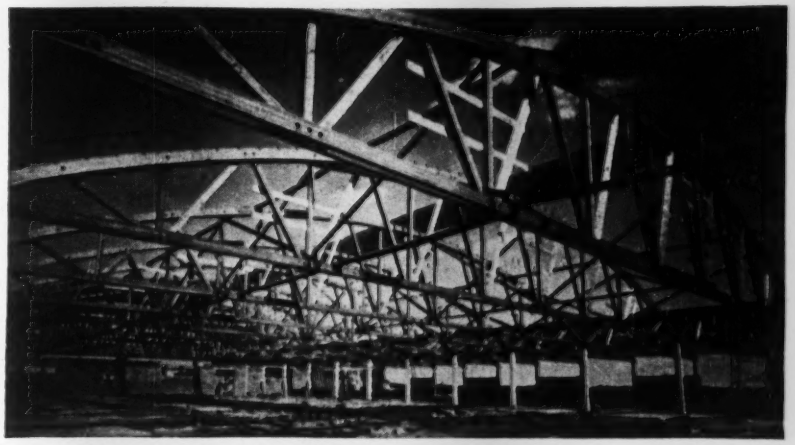
The A.M.M.I. presents this view: "The ease and efficiency with which raw materials for the industries of the area flow in through the port, and with which the products of industry and agriculture flow out determines to a large measure the rate of economic development and the level of prosperity of Baltimore and the surrounding area."

Ramp sanitary landfill demonstrated for 100

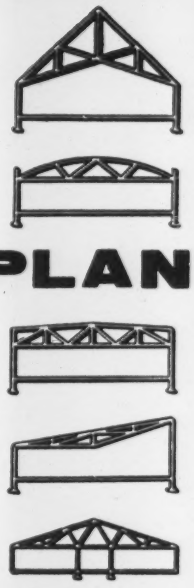
100 health and sanitation officials from 65 cities throughout Missouri gathered near Creve Coeur, Mo. late last month to watch as a strip of steeply rolling open dump turned into a level, earth-covered site through the Ramp Sanitary Landfill Method.

• **Adaptable to hills**—Designed specifically for hill-region communities in which the accepted sanitary landfill procedure would remove valuable flat land from agricultural or building use, the Ramp method utilizes the great amounts of dirt from the slope and crown of a hill for cover material.

• **Operation width variable**—In a Ramp-type operation, the first moves consist of making a series of cuts down the slope. The cuts vary in depth according to the height and slope of the hill, and serve as roads into the dumping area. Width depends



Rilco Laminated Products, Inc., fabricated 120' and 80' span trusses with TECO connectors for its Albert Lea, Minn., plant.



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upon the maximum number of vehicles expected to be unloading at one time.

For the Creve Coeur demonstration the dozer operator cut a site sufficiently wide to handle three trucks at once.

PHA combines Boston and New York field offices

Functions of the Boston field office of the Public Housing Administration were assumed July 1 by the New York office. John A. Kervick, director of the Middle Atlantic region, who expands his supervision to include all of the area from Maine to the District of Columbia, will oversee 30% of the nation's public and war housing programs.

Kervick said that the New York field office program, largest in the country before the absorption of the New England area, now oversees construction of 33,684 low-rent dwellings in 103 projects, 25 of these with 7,000 dwellings are in the New England area. In addition, there are 46 housing projects with 21,659 family dwellings in the pre-construction stage of development.

Municipal briefs . . .

• **Three-county shopping Mecca**—Plans for a $30-million shopping center in Yonkers, New York, have been announced by Sol. G. Atlas, developer. Buildings 1,000,000 sq. ft. in area, will go up on a 63-acre tract to serve three counties.

• **Rival banks join for parking**—The Colorado National and Denver National Banks have united in the planning of a $350,000 parking project. Two structures now on the proposed site will be razed to provide parking facilities.

• **Floc plant for Akron**—The first step has been taken in a planned $7-million expansion of the city's water works. Specifications for a new $1-million coagulation plant were approved June 29. The total program will increase water handling capacity by 25%, it is claimed.

• **No plant—no sewer extension**—Bardstown, Ky. was authorized by the Kentucky Water Pollution Control Commission to proceed with a sewer extension project provided it will move toward the construction of a sewage treatment plant. City officials have agreed to approve a $400,000 bond issue for the plant and sewers.

To get better prints... faster

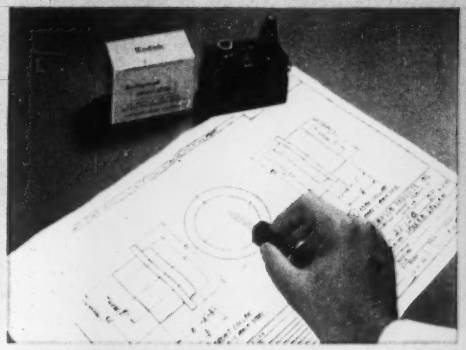
Tapco Plant, Thompson Products, Inc. uses Kodagraph Autopositive intermediates in print production.

The Tapco Plant knows full well that illegible shop prints pave the way for costly reading errors; knows, too, that Kodagraph Autopositive intermediates are low-cost insurance against such a possibility.

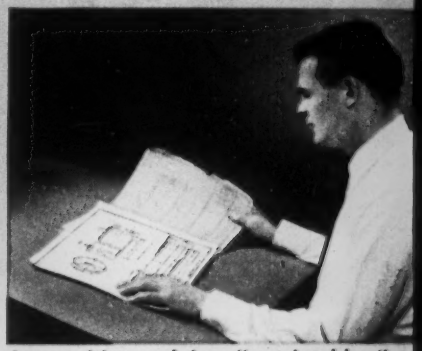
It therefore reproduces its more critical and complex jet and valve drawings on Kodagraph Autopositive Paper Translucent and thus obtains—quickly and easily—sparkling "masters" for print-making which have dense photographic black lines on an evenly translucent, premium-quality paper base; *which* will produce highly legible whiteprints time after time at *stepped-up* machine speeds.

Extremely fine-detailed drawings are reproduced on Kodagraph Autopositive Film, which captures the faintest detail . . . keeps close lines from "filling in" . . . and produces top-quality photographic intermediates which have extremely fast print-back speeds.

No negative step . . . no darkroom handling. Kodagraph Autopositive Paper and Film are handled in exactly the same manner . . . produce positive photographic intermediates *directly*. First, they are exposed in one of the Tapco Plant's direct-process machines—or in a photocopy unit. Then, they receive standard photographic processing. A fast, convenient room-light operation all the way. And no new equipment needed.



Autopositive intermediates save creative drafting time. Tapco Plant makes necessary changes in its basic designs without costly redrafting by (1) making Autopositive prints of the original drawing; (2) removing the unwanted detail from the Autopositive reproduction with eradicator fluid. Then, the draftsman has only to add the new detail . . . and a print-making master is ready. *One* which will produce highly legible prints without confusing "ghost" images in the eradicated area.



Autopositive reclaims "unprintables." Many old drawings that have lost line density or are soiled or torn are transformed into print-making masters by reproducing them on Autopositive Paper or Film. Stains and crease marks are dropped out . . . weak detail is made more legible—saving hours of redrafting. Autopositive Paper is also used to duplicate a variety of office records, non-translucent vendor prints, etc.

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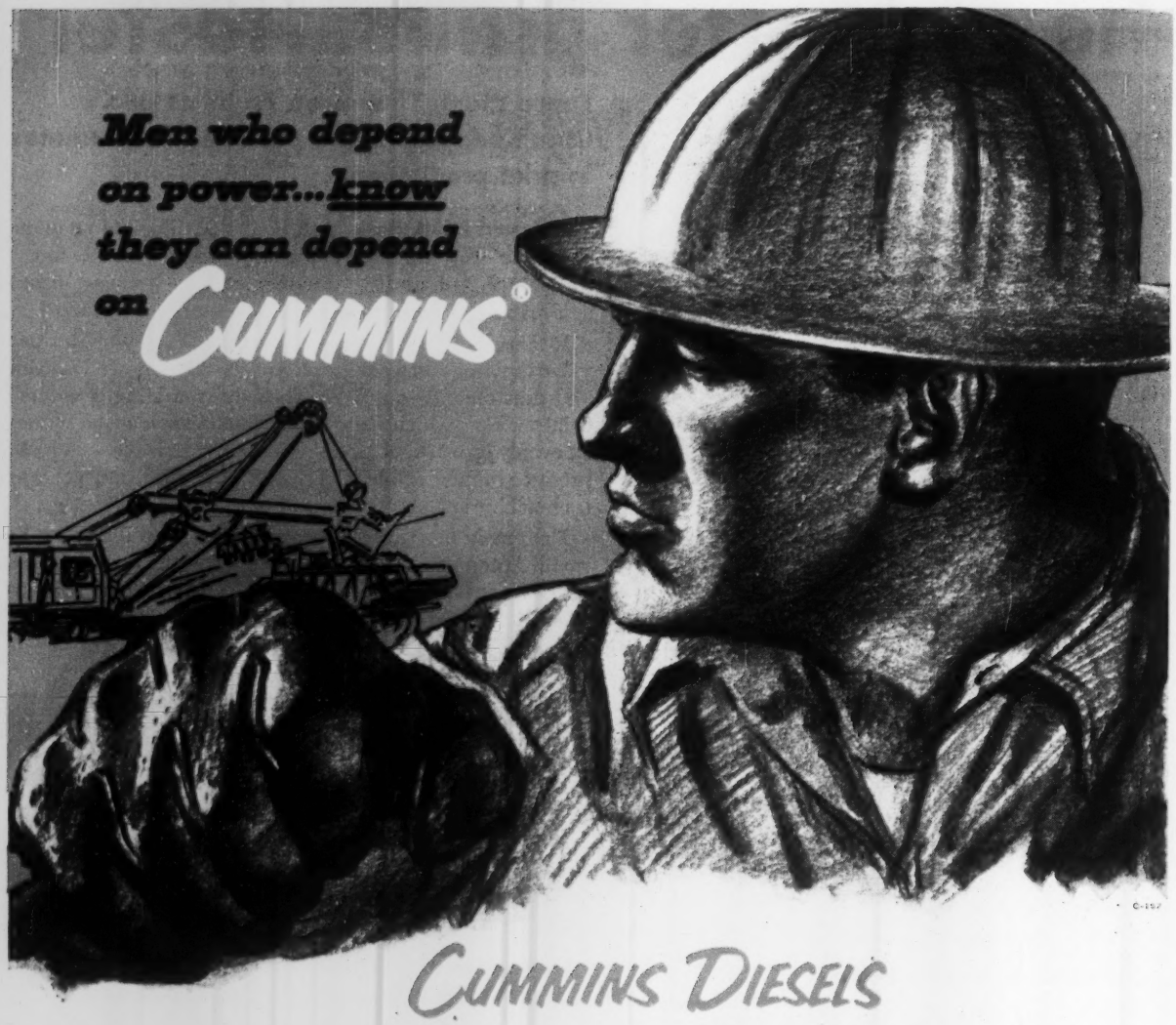

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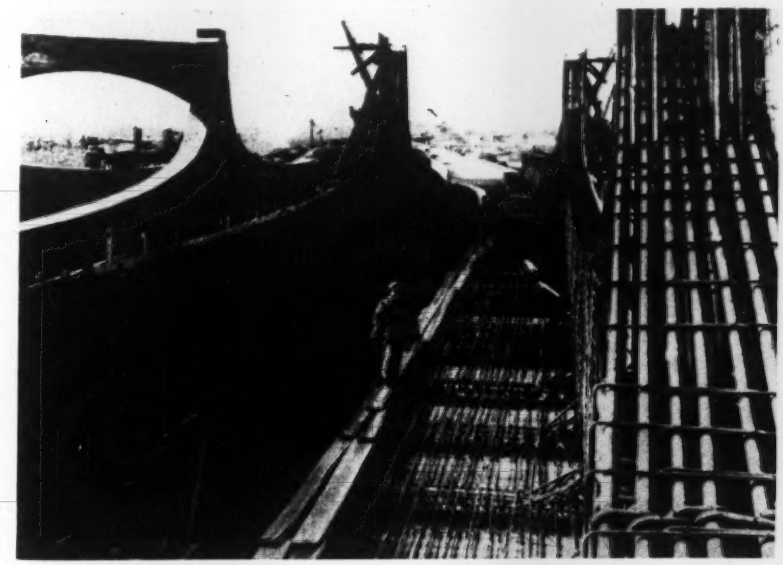
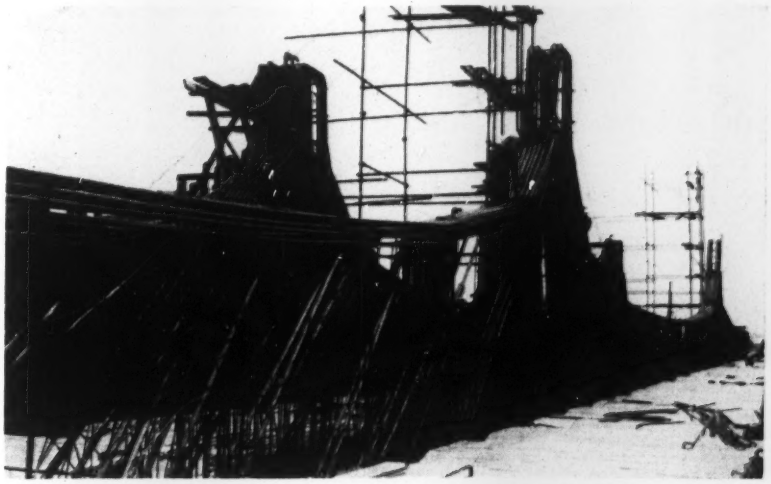


REINFORCED CONCRETE BRIDGE for railway viaduct in Argentina consists of three very heavily reinforced continuous spans.

Continuous girders haunched on top for highway clearance below

A continuous-girder railway bridge of reinforced concrete built in Buenos Aires, Argentina, represents an unusual solution of difficult field conditions. The structure has three continuous spans supported by girders 21 ft high at the piers and 6 ft high at the midpoint of the 145-ft central span. The road deck of the bridge is a reinforced concrete slab strengthened by transverse ribs on the underside.

• Carrying the General Roca Railroad over a trunk highway, the bridge was designed to meet two basic requirements. The first of these was that the railway bridge must provide horizontal as well as vertical clearance for the heavily traveled 130-ft wide highway beneath. This condition could have been met with an ordinary haunched concrete girder, but the deck elevation was fixed by the railway grade at a level



BRIDGE REINFORCING was put in place before formwork for concrete was erected around it. Central span is 145 ft long, approach spans 110 ft.

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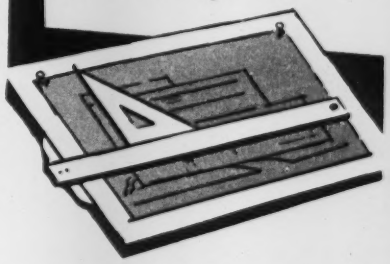

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where haunches on the underside of the girders would have provided insufficient clearance for trucks on the outside lanes of the highway. As a consequence, the deepening of concrete girders to take the moments at the narrow piers had to be carried out above the railway roadbed. The girders are therefore haunched on their upper edges rather than on the lower.

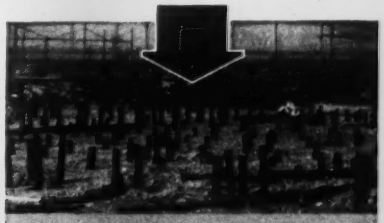
• **The other major consideration** in the design of the bridge was that concrete had to be used since structural steel may be imported in Argentina only at great expense. Argentina is a great cement producer so that no matter what the design engineers decided on in the way of reinforced concrete it would be cheaper than steel, although steel would have been a lot simpler in light of the clearance problem.

The bridge, heavily traveled by trains, has a clearance of 18 ft over the highway beneath. Built for a curved section of track, the three spans of the bridge are each chords of a curve, meeting at slight angles.

• **The initial construction** of the railway viaduct itself, of which the bridge forms a section, was necessitated by the traffic snarls affecting the north side of Buenos Aires when the railway crossed all the highways and streets at grade. Tunneling, instead of building a viaduct for the railroad, was out of the question due to the soil conditions and the maze of sewage lines

(*Continued on page 59*)

Pressure-Creosoted Piles, Driven Upside-Down



Save Half a Million Dollars in warehouse construction

● Driving pressure-creosoted timber piles with the big end down saved half a million dollars for Safeway Stores, Inc., on the construction of a warehouse in Kearny, New Jersey, by the Turner Construction Company. Alexander D. Crosett & Associates were the architects. A readily reachable stratum of sand, upon which the engineers intended to support the piles, was not sufficiently thick or dense to prevent the 8-inch-tip piles from punching through. Piles long enough to reach a lower stratum adequate to support the structure, would have been difficult and extremely costly.

To meet this unusual situation, the foundation consultants on the project, Moran, Proctor, Mueser and Rutledge, recommended that the timber piles be driven with the large end down. 8-inch-tip, 12-inch-butt pressure-creosoted piles were driven at about 6-foot center-to-center to support the building.

This butt-end down system made the installation of extremely long piles unnecessary, and resulted in very large savings. In addition, a considerable amount of valuable time was saved—time which would have been consumed in driving long piles. The driven piles, over 7500 of them, were remarkably firm laterally, withstanding individual load tests of twice their designed intensity, i.e., 25 tons.

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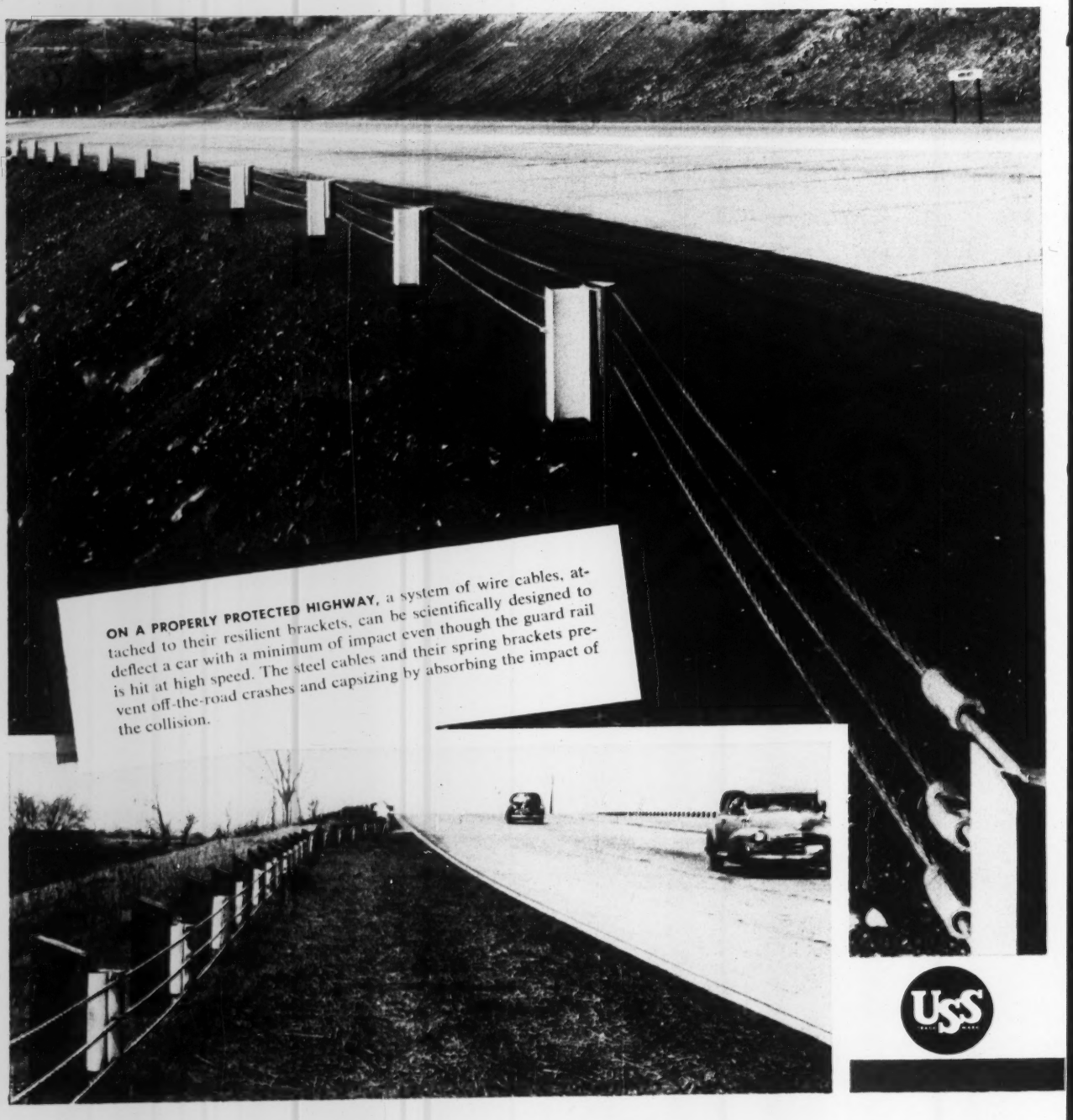

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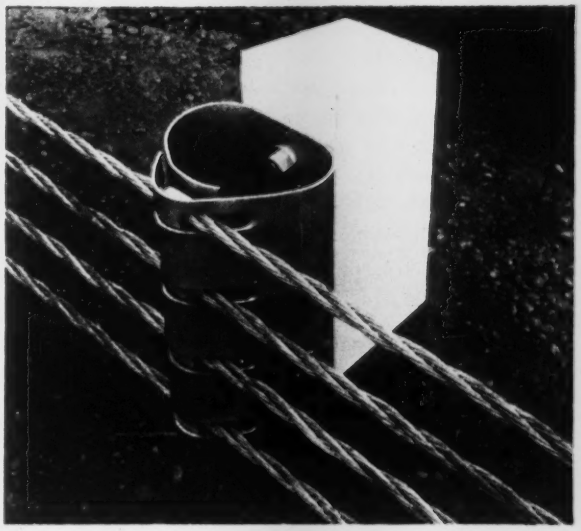

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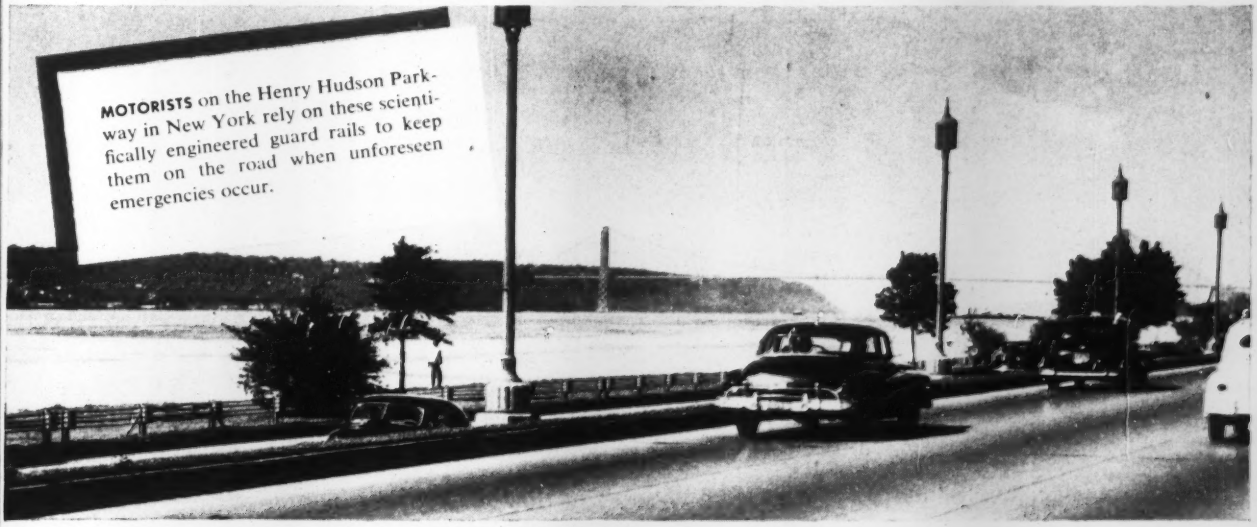
MOTORISTS on the Henry Hudson Parkway in New York rely on these scientifically engineered guard rails to keep them on the road when unforeseen emergencies occur.

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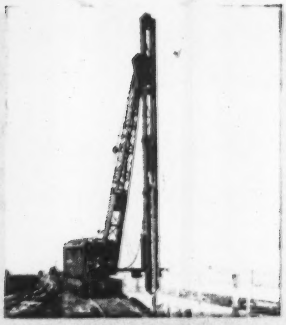
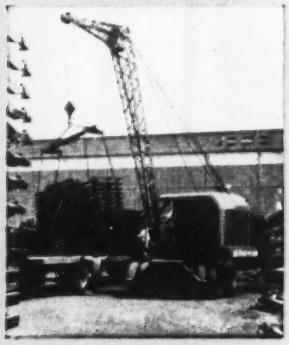


PILE DRIVING



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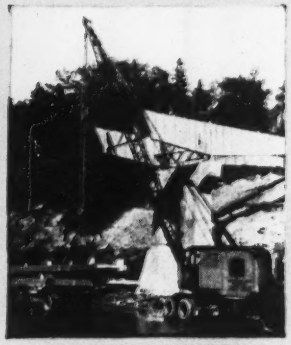

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running through this part of the city. Building pier foundations for the viaduct was easier than constructing the foundations and structural roof for a tunnel.

Cesar J. Luisoni of Buenos Aires designed the bridge.

International briefs . . .

• **Manila swamp reclamation**—Turning the Candaba swamps—about 75,000 acres north of Manila, P. I.—into rice fields and fishponds will start as soon as approval for Mutual Security Agency aid is obtained from Washington. Reclamation calls for the construction of a $620,000, 24-mile canal to drain the swamp into the Pamanga river.

• **Pakistan road plan**—Australia has signed an agreement to provide machinery and technical advisers to help Pakistan with an estimated $63-million road development program. Besides improving existing road conditions, the Pakistan government plans to build more than 5,000 miles of main highways and over 11,000 miles of provincial roads in the next few years.

• **French pipeline**—France has finally given the United States a go-ahead signal to start laying a 400-mile jet fuel pipeline across France from the Port of Donges (near St. Nazaire) to Metz. Agreement on terms came after 22 months of differences between the countries over control, use and management of the line (ENR, June 11, p. 34). The line will carry fuel for US jet fighters and bombers stationed in France and West Germany.

• **Canadian investment**—Two New York firms—Lehman Brothers and Kuhn Loeb & Co.—have formed a new company called Triarch Corp., Ltd., Toronto. Object: to provide finance and technical experience for developing Canadian natural resources. Also taking part are two other concerns banks and insurance companies—all of London. Minority holding is spread among Canadian business leaders.

• **Philippine pact**—An agreement granting Caltex, Inc. a concession (necessary under Philippine revenue laws) to build a $30-million petroleum refinery at Bauan, Batangas, has been signed at the office of Placido L. Mapa, acting secretary of agriculture and natural resources. The plant, to process 13,000 barrels of crude oil per day, is expected to be completed late in 1954.

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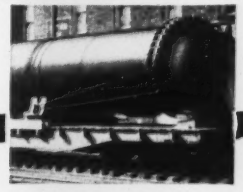

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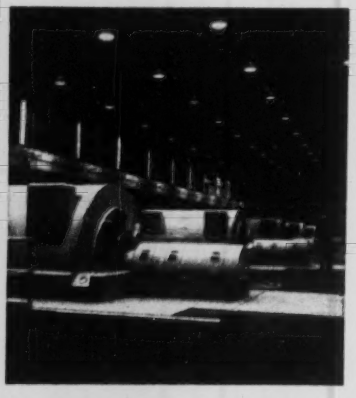
what's NEW in Engineering

The "swing and spill" hazard in conventional hook and crane hoisting may soon be a thing of the past, according to a midwestern laboratory. It has developed a new crane which substitutes an automatic mechanism, controlled by a small knob, for the usual operator's controls. The result is a smoother, controlled hoist. So new, this crane is still in scale model stage.



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Cover and above photos by Bob Phillips—Black Star

ARTHUR F. BURNS—top economic adviser, he's construction's friend at court.

A new role for construction planned if recession comes

In the anti-depression planning now being pushed in Washington, construction is in undisputed place at the top of the list.

It was put there by Arthur F. Burns (cover), the man Eisenhower depends on to keep a business downturn—when it comes—from developing into a major depression.

Three months ago, Burns was a distinguished but little-known research economist and Columbia University professor. Today he is chief of a new economics general staff for Eisenhower—with the heaviest responsibilities any President ever gave a professional economist.

His rise means a new role for construction in government planning. President Hoover believed in the curative power of construction in 1930—and for a year, he succeeded in pumping up activity. But when the New Deal took over, it switched to other ideas and construction had to share the stage with money reform, leaf raking, social experimentation, etc.

The Eisenhower Administration will be more consistent—certainly it will be as long as Arthur Burns is its top economist. Almost his first official act under Eisenhower was to call in two experts—Robinson Newcomb, a construction economist, and Professor R. J. Saulnier of Columbia University, specialist in housing and finance. He assigned them the task of drawing up a detailed program of how the government should go about stepping up construction in case the economy should sag.

There never has been a job just like Burns'.

Eisenhower asked him to come to Washington to be chairman of the Council of Economic Advisers which is charged with the duty of telling the President about the state of business. But Congress refused to vote money for a full council. Burns was reduced to merely another member of the White House staff.

• **Quiet worker**—He worked quietly with Dr. Gabriel S. Hauge, Eisenhower's Administrative Assistant for Economic Affairs, drawing up a recommendation that would fit their ideas of how an economist should function as presidential aide. After some wavering, Eisenhower bought their idea. Here's how it shapes up.

First, Burns will be chairman of a reconstituted Council of Economic Advisers. Eisenhower has asked Congress for $300,000 for the council, which will consist of two members in addition to Burns, and a staff of around 30. Unless unexpected opposition develops, Congress is expected to vote the money.

Second, Burns will be chairman of

a new group, called the Advisory Board on Economic Growth and Stability, awkwardly nicknamed "ABEGS." On the board are high-level officials from agencies and departments interested primarily in business conditions—Commerce, Labor, Agriculture, Treasury, Budget Bureau and the Federal Reserve Board. Hauge is a member representing the White House staff.

The new board's responsibility is to recommend programs that will keep the economy healthy. For example, it will get the first look at the construction program now being hammered out under Burns' eye. Later, if business turns down, it will decide when the program should be taken off the shelf and put to work.

This combination of jobs really adds up to a powerful one-two punch for Burns. But it could scarcely have been handed to a man less inclined to wild swinging.

Burns has always thought of himself as an economic scientist—primarily a research specialist. His emergence as a top policy maker has not changed him. Congressmen learned this when they tried to nail him down on the present condition of business.

• **Up or down?**—Are we in a period of inflation or deflation? It depends on what figures you look at, Burns said.

Does he approve of a hard-money policy? He's studying that.

What about the prospects of a depression? "I'm a very poor prophet," Burns replied.

Part of this caution stems from a conviction that his job lies in advising Eisenhower, not in making public appearances. But a good part stems from Burn's precise and subtle mind. Many businessmen, for example, would find his answers almost too complicated, too hedged about with scholarly ifs and buts. He is an economist's economist.

This may be a handicap when it comes to dealing with Congress and with some of the businessman-administrators Eisenhower has installed in Cabinet posts. But Burns has a gift for putting his ideas across in quiet conversation, which so far has smoothed his way.

• **Expert on cycles**—His great advantage of course—is his vast and undisputed knowledge of the business cycle. Here are some of the things past business cycles showed Burns about construction and the role it plays:

(1.) A construction downturn—when

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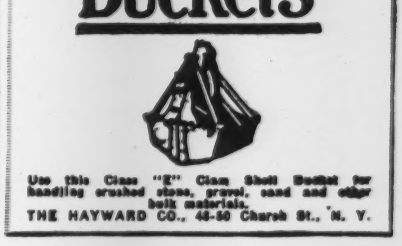
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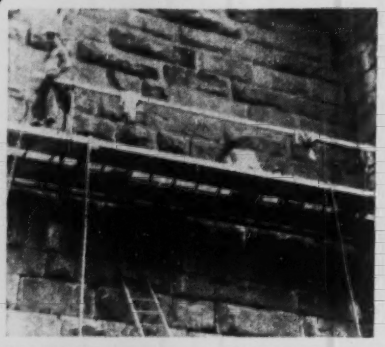

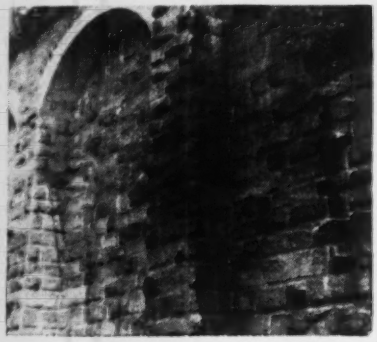

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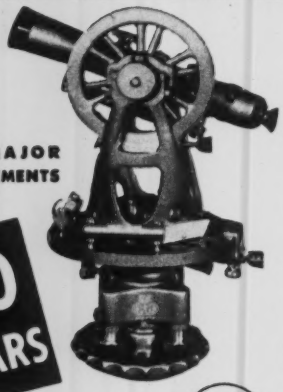

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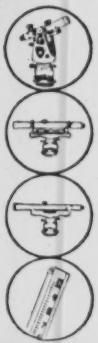

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it occurs along with a dip in financial indicators like stock prices, stock trading, and the turnover of bank deposits —often is an advance signal that a boom is over.

(2.) Because practically all projects are built to special specifications, requiring a new work force, an expansion of construction results in a prompt increase in the number of jobs. Burns points out this is not true, for example, if there is an increase in spending for consumer durables. This would clear dealers' stocks of surplus stocks, but might not result in a quick increase of employment in appliance factories.

(3.) Each downturn in business is given a character all its own by the nature of the boom that preceded it. Therefore, it's foolish to depend on pat formulas for checking a recession. plans must be made to suit each particular case.

• **Selective hypos**—For example, if road building is continuing at a high level despite a general downturn in business, it then would be a mistake to pile on more road building. Or if a recession occurred after a long period of new-house construction, he might look to repairs and modernization as a sensible place to expand activity, instead of trying to steam up another round of new houses. This sort of selectivity will be a key to anything Burns recommends.

To help turn this thinking into plans-on-hand, Burns is drawing on Newcomb's experience in government and in the industry. He is co-author of "Stabilizing Construction," a study published for the Committee for Economic Development.

Exactly what he'll recommend to Burns, and what Burns will adopt for consideration of ABEGS, can't of course be foretold. But like Burns, Newcomb is on record in enough places to show what the general line is likely to be.

One of Newcomb's convictions is that stimulation of construction in the early stages of a downturn would be a mistake. He thinks enough time should go by to allow the industry itself to make some adjustments. He cites the experience of homebuilders in 1948 who, faced with a dip, switched to the kind of houses most in demand and checked the downturn themselves. He thinks it would also take some time to determine exactly what particular kinds of construction needed stimulation, and which were rolling along under their own steam. He has said that this period might run as long as a year.

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Burns and Newcomb agree that it's unrealistic to look to construction as a means of avoiding the business cycle altogether. Both expect downturns to occur, despite all the planning that can be done.

Burns has been explicit on this point. He sees the prevention of severe depressions as "the crucial problem of our times." But he does not see the prevention of minor business or employment cycles, like those of 1926-27, or 1948-49, as crucial. He'll use stimulation of construction only to avoid serious troubles. This does not promise the industry a featherbed. But it does promise that Burns will count on the industry if the going gets tough.

Careers . . .

• **Appointed**—**L. B. McKnight** becomes president of Chain Belt Co., Milwaukee, succeeding **J. C. Merwin,** who moves up to board chairman . . . **Charles B. Baker** has become executive vice-president of Universal Atlas Cement Co., New York . . . **Nathan Lockshin** has been named executive vice-president of Builders Structural Steel Corp., Cleveland . . . **N. M. Sedgwick** has become general manager of Le Roi Co.'s new division for making front-end loaders and truck-mounted mixers . . . **L. H. Oppenheim,** assistant general manager of Kaiser Engineers, has also become a vice president of Henry J. Kaiser Co. . . . **Walter L. Huber,** San Francisco consulting engineer who is now president of the American Society of Civil Engineers, has been appointed to a six-year term on the National Park Services Advisory Board . . . **Stephen H. Badgett** has been chosen as manufacturing vice-president of Schaible Co., Cincinnati . . . **Herman L. Smith** has been elected a vice-president of Richkraft Co., Chicago . . . **Col. Arthur C. Nauman** has become district engineer at Detroit for the Corps of Engineers . . . **William S. Mackintosh** has become district engineer in charge of the Lincoln (Neb.) office of the Bureau of Public Roads.

• **Local government appointments**—**David E. Morris,** city engineer of Tacoma, Wash., has also been named director of public works.

• **Elected**—**Herschel A. Hooe** has been elected first vice-president of the Southeastern Building & Construction Trades Conference . . . **Robert H. Strickland** has been made executive secretary of the Georgia branch, Associated General Contractors.

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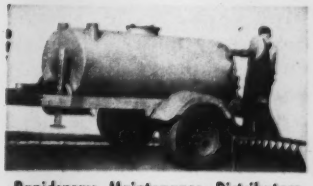

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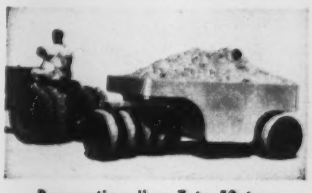

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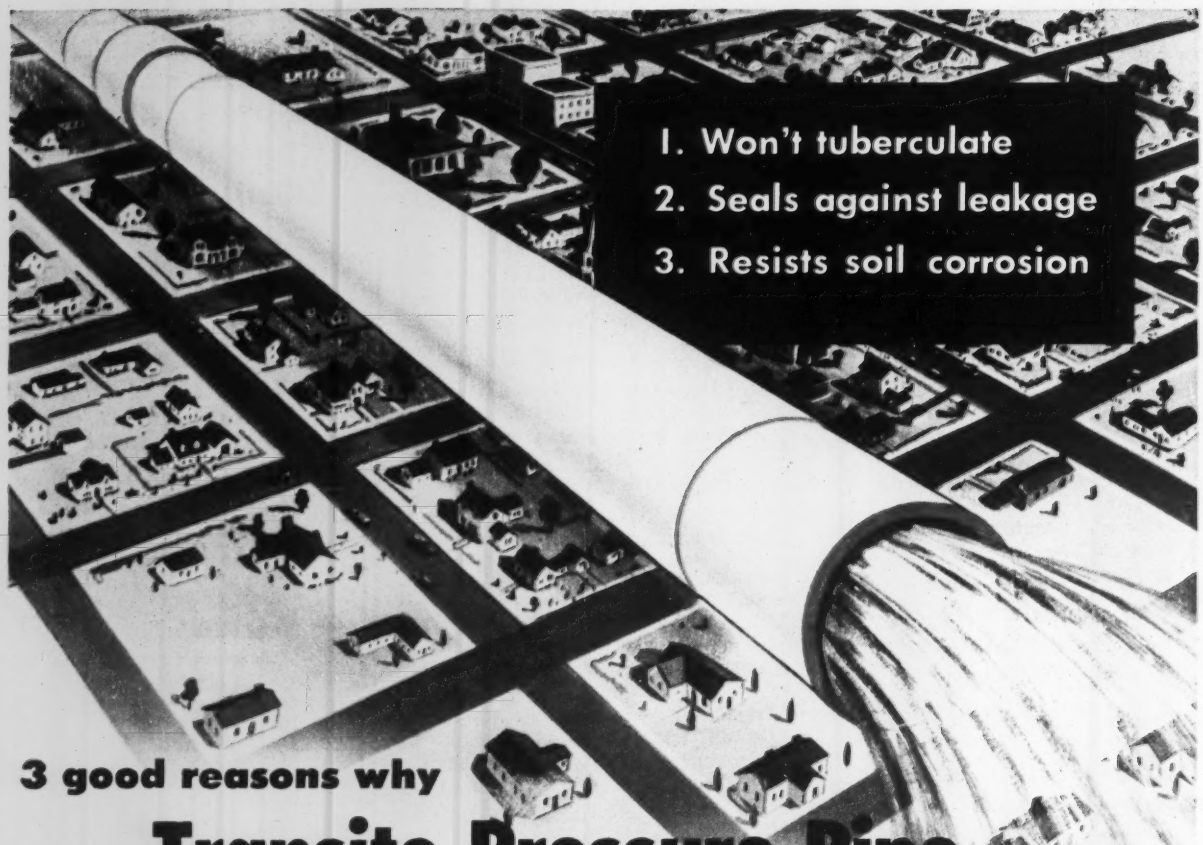

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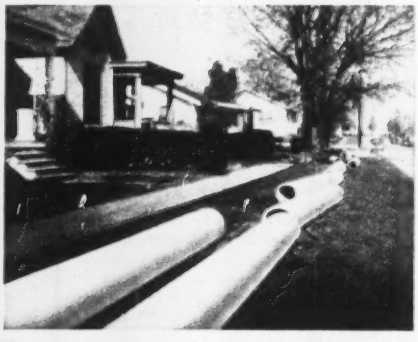

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OBITUARIES

Henry Hunholz, 82, a Milwaukee County, Wis., building contractor who had been in the business 48 years before retiring in 1938, died June 29 at Wauwatosa, Wis.

Arthur S. Thompson, 68, a civil engineer for the New York Central Railroad in Cleveland, died June 25 in Mt. Vernon, O. He had served as Knox County surveyor 1909-11.

Herschel G. Wray, 62, Liberty, Ind., member of the Indiana State Highway Commission, died July 2 in Indianapolis. Receiving his civil engineering degree from Purdue University in 1913, he became city consulting engineer in both Indianapolis and South Bend, supervising the latter city's $30-million track elevation project in 1926. He was also grade separation expert for the Pennsylavnia Railroad and during World War II served with the army as housing and construction engineer.

Granville G. Sutton, 58, retired engineer, died July 5 at Richmond, Va. A graduate of Virginia Polytechnic Institute, he was last associated with the Yarnall-Waring Co. of Cleveland.

Howard M. Smitten, 75, of Lafayette, Calif., former bridge engineer for Western Pacific Railroad Co., died June 30 at Tucson, Ariz., where he was consulting engineer on bridge work for the Utah Construction Co. He began his career with Southern Pacific Co. After returning from service in World War I—leading the 37th Army Engineers in France—he joined Western Pacific. From 1946 to 1952 he was a director of the Central Contra Costa County sanitary district.

James B. Noe, 77, formerly assistant to the chief engineer of the Consolidated Edison Co. of New York, Inc., died July 8 at West End, N. J. He received his EE degree from Rutgers.

Dr. Homer Addams, 80, authority in the field of heating, ventilating and air conditioning, died July 3 at Philadelphia, Pa. At the time of his death he was chairman of the board of directors, Fitzgibbons Boiler Co., Inc., of Oswego, N. Y. During his career Dr. Addams worked as an installer of heating plants; handled development, engineering and research for manufacturers of cast-iron boiler products; acted as consultant on heating projects. In 1921 he became president of Kewanee Boiler Co., N. Y., and also acquired the Fitzgibbons Boiler Co.

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LEGAL

Delays caused by owner

"It is undoubtedly the rule in this state (Washington), as well as in other states generally, that in the absence of any provision in the contract to the contrary, a building or construction contractor who has been delayed in the performance of his contract may recover from the owner of the building damages for such delay if caused by the default of the owner. Byrne v. Bellingham Consolidated School District No. 301, 7 Wash. 2d 20, 32, 109 P. 2d 791, 796. See Note (1938) 115 A.L.R. 65, 66, in which are collected a great number of cases supporting this rule, including Hetherington-Berner Co. v. City of Spokane, 75 Wash. 660, 135 P. 484. The rule rests on what is generally held to be the owner's implied obligation to keep the work of construction in such a state of forwardness as will enable the contractor to complete his contract within the specified time.

"Where, however, the contract expressly precludes the recovery of damages by the contractor for delay caused by the default of the owner, that provision will be given full effect."[1] Numerous cases are cited to sustain this principle of law.

The contract provided: (1) that the contractor shall not be entitled to damages on account of hindrances or delays from any cause whatsoever, but (2) that he may be entitled to an extension of time in case of acts or omissions by the owner causing such delay, provided (3) that he, the contractor, gives written notice of the cause of the hindrance or delay within ten days after its occurrence.

(1) Ericksen v. Edmonds School District No. 15, 125 P. 2d 275.

Agreements to obtain government contracts

"Our decisions establish that an agreement to represent a person or firm before a government agency or officer for the purpose of obtaining a government contract is valid and enforceable unless it appears, either from the contract itself or from extrinsic circumstances, that the parties contemplated the use of pecuniary influence or other corrupt methods."[1]

(1) Ambattelos v. Foundation Co., 116 N.Y.S. 2d 641, Supreme Court, New York County, Oct. 30, 1952.

(These summaries of court decisions are prepared by I. Vernon Werbin, New York attorney and civil engineer.)

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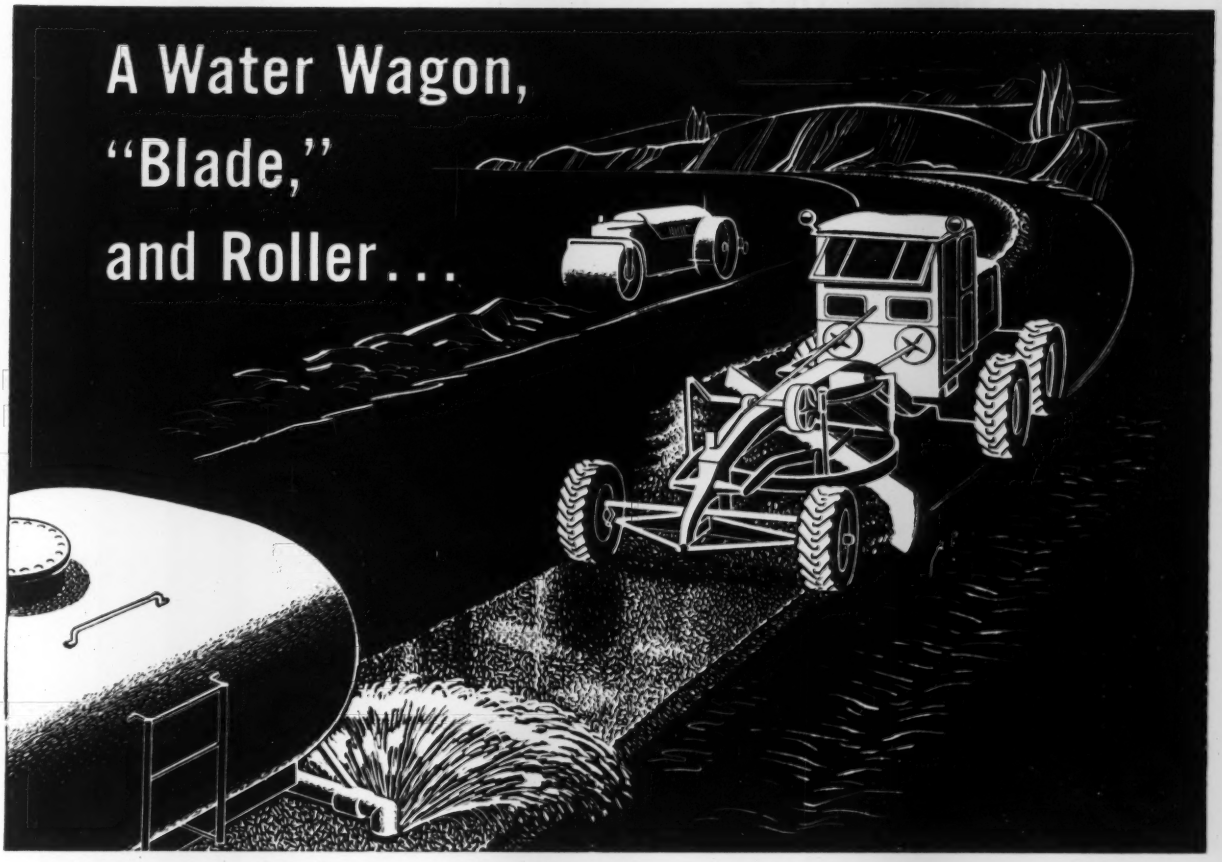

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—BUILDINGS

Conn., Hamden—SCHOOL—B.A. 7/31—Town, Bd. Educ., 2040 Dixwell Ave., Hamden, Northwest School, Hillfield Rd. and Shepard Ave. $300,000. Henry S. Kelly, 282 York St., New Haven, archt. CD 5/13, under LB.

SOON LETS CONTRACT—BUILDINGS

▲ **Conn., Hamden**—STORE, etc.—Westcott & Mapes, Inc., archt., 109 Church St., New Haven, soon lets contract store and warehouse 2301 Dixwell Ave., for Sears, Roebuck & Co., c/o R. K. Wilson, N.E. Regional Mgr., 201 Brookline Ave., Boston, Mass. $1,750,000. CD 6/30.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Albert A. Lutz Co., Inc.**, 241 W. 17 St., New York, N. Y., CA **$3,765,959**, est. $5,000,000. double cantilever maintenance hangar, Limestone Air Force Base, ENG-19-016-53-104, LIMESTONE, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids May 28. CD 6/2, under LB.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

M. DeMatteo Constr. Co., 200 Hancock St., Quincy, Mass. LB. **$1,328,172**. est. $1,260,000. state hy. constr. Provincetown and Truro;

Coleman Bros. Corp., 40 Central St., Boston, Mass. LB. **$343,991**, est. $300,000. hy. and bridge constr. Auto Rte. 3, Billerica. Bids July 7. CD 6/17 and 6/24.

Pipe Lines, Inc., 690 Berkshire Ave., Springfield, Mass. LB. **$115,630**, est. $100,000. Contr. 9, sewer exten., Cushman and Pelham Dist., AMHERST, MASS. Town, Bd. Sewer Comn., Amherst, Mass. Bids July 3. CD 6/22.

State, Metropolitan Dist. Comn., 20 Somerset St., Boston, Mass., rejected bids June 11, Sect. 134 Framingham Trunk Intercepter Sewer, Natick-Framingham, BOSTON, MASS. LB. **$738,921**. CD 6/16, under LB.

Construction Rentals, Inc., 1125 Page Blvd., Springfield, Mass. LB. **$125,446**. est. $100,000. sanitary sewer, storm water drain, Wilbraham Rd., SPRINGFIELD, MASS. City, Dpt. Streets & Engineering, Admin. Bldg., Springfield, Mass. Bids July 6. CD 7/1.

Ralph Civitarese Co., 139 Providence St., Hyde Park, Mass. LB. **$216,795**, est. $200,000. Contr. 6, lateral sewers, North of Broadway between Town Meadows and Naugatuck Ave., MILFORD, CONN. Town, J. J. Desmond, town mgr., Town Court, Milford, Conn. Bids July 6. CD 6/19.

Tibbetts Contg. Corp., 1559 Post Rd., Fairfield, Conn. LB. **$412,050**, est. $400,000. Quinnipiac trunk line, etc., NEW HAVEN, CONN. City, Hall of Records, New Haven, Conn. Bids July 2. CD 1/5/45.

BUILDINGS

LOW BIDS AND CONTRACTS

David M. Deans, Sabin Dr., Williamstown, Mass., CA. $300,000. PLANT addn., alterations, BENNINGTON, VT. National Carbon Co., Inc., 30 E. 42 St., New York, N. Y.

J. J. Powers Co., 238 Main St., Cambridge, Mass. CA. Est. **$400,000**. SERVICE CENTER, CAMBRIDGE, MASS. Cambridge Gas Light Co., 719 Massachusetts Ave., Cambridge, Mass. Negea Service Corp., 10 Temple St., Cambridge, Mass., engrs. and archts.

Molony & Rubien Constr. Co., 66 Wickendon St., Providence, R. I., CA. **$300,000**. CONVENT, PAROCHIAL SCHOOL, Pine St., CRANSTON, R. I. St. Anne's R.C. Parish, Rev. John L. Bruary, 1493 Cranston St., Cranston, R. I. CD 6/24.

Waterbury Constr. Co., Inc., 225 S. Leonard St., Waterbury, Conn. LB. **$577,400**, est. $517,500. elementary SCHOOL, SEYMOUR, CONN. Town, Supt. Schools, High Schoo., Pine St., Seymour, Conn. Bids July 6. CD 6/29.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Md., Baltimore**—B.A. 7/29—City, Bureau Water Supply, 503 Municipal Bldg., First Phase, Ashburton Filtration Plant, constr. water treatment plant, 120 m.g. p.d. wash water lake, residence, planting, seeding. Total est. $12,500,000. Plans deposit $100. Whitman, Requardt & Assoc., 1304 St. Paul St., Baltimore, engrs. CD 7/6.

NEW YORK—B.A. 7/29—Triborough Bridge & Tunnel Auth., Administration Bldg., Randall's Island, New York Zone 35,

Queens Co.—grading, drainage, structures, paving, utilities, Contr. No. QME-1, Queens-Midtown Expressway, Connecting Hy. to Maurice Ave., Queens Boro. Plans deposit $35. Andrews, Clark & Buckley, 305 E. 63 St., New York, engrs. CD 10/13.

N. Y., Newark—B.A. 7/30—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, sewage pumping station, Bldg. No. 68, Newark State School. Plans deposit $15.

N. Y., Rome—B.A. 7/30—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, sewage disposal plant imprvs., Rome State School. Plans deposit $15. CD 2/26/47, under Unclassified.

N. J., Trenton—STADIUM—B.A. 8/19—City, War Memorial Comn., Memorial Bldg., Stacy Park, municipal stadium. $750,000. Louis S. Kaplan, 25 N. Montgomery Ave., archt. CD 5/15.

BIDS ASKED—BUILDINGS

N. Y., New York—MARKET—B.A. 7/29—Dpt. P. Wks., Municipal Bldg., Zone 7, general constr., plumbing, heating and ventilating, electrical work for constr. Harlem Retail Market 8th Ave. and W. 142 St., Manhattan Boro. Plans deposit $50. CD 7/9/52.

† **New York**—WAREHOUSE, etc.—B.A. On Or About 7/31—U. S. Eng., 24 St. and Maryland Ave., P. O. Box 1715, Baltimore 3, Md., furnishing, erecting prefabricated steel 28x80 ft. by 12 ft. high at the eaves warehouse; prefabricated steel 24x36 ft., by 10 ft. high at the eaves garage; relocating 16x24 ft. prefabricated steel garage for use as oil shed constr. concrete fdns., floor slabs and driveway; installation of insulation in garage; appurtenant electrical work and lightning protection, Whitney Point Dam, approx. 3/4 mi. from village of Whitney Point, Broome Co., Serial No. CIVENG-18-020-54-1.

N. Y., New York—LIBRARY, etc.—B.A. 8/5—Dpt. P. Wks., Municipal Bldg., Zone 7, general constr.; plumbing; heating and ventilating; electrical work and lighting for constr. of Westchester Square Health Center and Westchester Square Branch Library, Glebe Ave. and Overing St., Bronx Boro. Plans deposit $50. CD 8/13/51.

Pa., Chester—BLDG., LABORATORY, etc.—Bids Asked At office Charles T. Main, engr., 80 Federal St., Boston, Mass., bldg., laboratory bldg. and office for Scott Paper Co., Main St., Chester, $350,000.

Pa., Reading—SCHOOL—Bids Asked—St. Catherine of Sienna R. C. Church, 2427 Perkeomen Ave., Mt. Penn, Reading, school. $300,000. Wayne M. High & Sons, 230 N. 6 St., Reading, archts.

SOON LETS CONTRACT—BUILDINGS

▲ **Pa., Villanova**—DORMITORY—Villanova College, Villanova, soon lets contract dormitory. $1,218,000. Henry D. Dagit & Sons, 1329 Race St., Phila., archts. CD 4/6.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects invloved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Arthur A. Johnson Corp., 347 Madison Ave., New York 17, N. Y., CA. **$2,694,248**, bridge over Genessee River, Proj. FAGC 53-11, Monroe Co. Bids June 4. CD 6/8, under LB.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Arute Bros., Inc., 560 S. Main St., New Britain, Conn. CA. **$3,320,468**, est. $4,205,000, Taconic State Parkway, Sect. 7, Pt. 3; Sect. 8; Sect. 9A, Pts. 1 and 2; and Sect. 98, Pt. 1, 3.64 mi. Acc. 12.29 mi. Parkway TSP 53-1P, Columbia and Dutchess Counties. Bids May 28. CD 6/2, under LB.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Weber Constr. Co., Inc., 133 Wall St., Schenectady, N. Y., CA. **$893,662**, est. $1,072,000, New York State Thruway Mohawk Sect. Sub. 1 (D. & H. R.R. and N. Y. C. R.R.) 0.37 mi. cont. M T 53-9. Schenectady Co.;

Camarco Contractors, Inc., State Rd., Carmel, N. Y. CA. **$924,616**, est. $947,000, Pawling Village; S.H. 5009, Pawling-Dover Town Line, S.H. 612, Dover Plains-Pawling Townline, Pt. 2, S.H. 5326. 3.25 mi. FARC 53-33, Dutchess Co.;

Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream, N. Y., CA. **$974,754**, est. $1,233,000, Huntington Town Line, Farmingdale, Pt. 1, SH1218, Huntington-Amityville, Pt. 1, SH 794, 2.95 mi. FARC 53-38, Suffolk Co.;

S. A. Scullen Co., 6 Second St., Waterford, N. Y. CA. **$921,513**, est. $1,065,000, Utica City: North-South Arterial (Horatio St.) Horatio St. Ext. Deerfield Cors.-Marcy Hill, SH 933, 2.71 mi. FAC 53 12, FASH 53-9, FARC. 53-40, Oneida Co. Grand total $3,714,545. Bids May 21. CD 5/25, under LB.

▲ **Lasker-Goldman Corp.**, 50 E. 42 St., New York 17, N. Y., CA, **$1,177,000** Hangar No. 7 superstructure Contr. NYA 290-004, New York International Airport, IDLEWILD, N. Y. Port of New York Auth., 111 8 Ave. New York, 11, N. Y., Bids June 9. CD 6/15, under LB.

▲† **U. S. Eng.**, 121 N. Broad St., Phila., Pa., rejected bids Feb. 10, AVGAS Fuel and lube facilities, McGuire Air Force Base, ENG-36-109-53-367, WRIGHTSTOWN, N. J. LB **$1,824,312**. Will re-advertise. CD 4/22, under LB.

† **Frank Bryan, Inc.**, 1263 Chartiers Ave., McKees Rocks, Pa., CA **$757,030**, Levee Unit No. 1, Swoyersville-Forty Fort Flood Protection Proj., CIVENG-18-020-53-73, PENNSYLVANIA-U. S. Eng., 24 St. and Maryland Ave., Baltimore, Md. Bids June 30. CD 6/3.

Archie Pyne, 221 Marlberry Ave., Phila., Pa. LB **$169,000**. sanitary sewer, BROOMALL, PA. Marple Twp. Supervs., Broomall, Pa. Damon & Foster, Sharon Hill, Pa., engrs. CD 5/2/52.

BUILDINGS

LOW BIDS AND CONTRACTS

L. H. Ludwig Co., Inc., 20 W. Main St., Falconer, N. Y., CA **$315,000**. Department STORE, JAMESTOWN, N. Y. Owner, c/o Sumner Schein, archt., 271 Huntington Ave., Boston, Mass. W. T. Grant Co., 130 W. 42 St., New York, N. Y., lessee.

▲ **Marlton Hills, Inc.**, 3836 Browning Rd., Pennsauken, N. J. Separate Contracts, **$3,500,000**, RESIDENTIAL DEVELOPMENT, Route 70, MARLTON, N. J. Dante J. D'Anastasio, 1815 Federal St., Camden, N. J., archt.

Frank Panna & Son, Stratford, N. J., Separate Contracts. $320,000. RESIDENTIAL DEVELOPMENT, Vassar Ave., STRATFORD, N. J. Wm. Dean Faint, 1915 Browning Rd., Pennsauken, N. J., archt.

▲ **Louis H. Cahan & Co.**, 140 W State St., Trenton, N. J., CA, **$2,000,000**. APARTMENT, Stuyvesant and Beechwood Sts., TRENTON, N. J. Park-Stuyvesant Cooperative Assoc., c/o contractor. Harry Sternfield, 1411 Walnut St. Phila., Pa., archt. CD 6/25/51.

Paul Liebman, 7791 Spring Ave., Elkins Park, Pa. Separate Contracts. **$900,000**. RESIDENTIAL DEVELOPMENT, Johns Rd., ABINGTON, PA. Christian H. Fries, 1824 N. Etting St., Phila., Pa., archt.

▲ **Wark & Co.**, 1920 Sansom St., Phila., Pa., CA. $1,000,000. OFFICE bldg., (Esso, lessee) BALA CYNWYD, PA. Vernon D. Cox & Co., 1428 S. Penn Square, Phila., Pa. Aaron Colish, 117 S. 17 St., Phila., Pa., archt.

▲ **F. A. Collins, Inc.**, 527 Welsh St., Chester, Pa. Separate Contracts. **$1,000,000**. DEVELOPMENT, Chichester Rd. and Peoples St., CHESTER, PA.

▲ **Wark & Co.**, 1920 Sansom St., Phila., Pa., CA. $1,228,000. general contract JUNIOR HIGH SCHOOL, ELKINS PARK, PA. Cheltenham Twp. School Dist., Elkins Park, Pa. Bids May 21. CD 6/8, under LB.

▲ **Facciolo & Barrett**, Lansdowne, Pa., Separate Contracts $1,200,000, RESIDENTIAL DEVELOPMENT, Route 23 GULPH MILLS, PA.

Ritter Bros., 1511 N. Cameron St., Harrisburg, Pa. CA $400,000. 1 story, 80,000 sq. ft. masonry WAREHOUSE and DELIVERY BLDG., HARRISBURG, PA. Pomeroy's, Inc., 4th and Market Sts., Harrisburg, Pa. Bids June 15. CD 6/10.

▲ **P. R. Roberts**, 16 E. Lancaster Ave., Ardmore, Pa., SEPARATE CONTRACTS, $1,000,000, RESIDENTIAL DEVELOPMENT, Barren and Northwood Rds., LARCHMONT, PA.

Paul Newman, 1325 Walnut St., Phila., Pa. Separate Contracts. $310,000. RESIDENTIAL DEVELOPMENT, Mansfield St., PHILA., PA. J. Ethan Fieldstein, 1325 Walnut St., Phila., Pa., archt.

▲ **S. Yellin & Son, Inc.**, 222 N. 11 St., Phila., Pa. C. $3,000,000. APARTMENT, Wissohickon and Chelten Aves., PHILA., PA. Owner c/o general contractor. Antrim & Etter Assoc., 117 S. 17 St., Phila. Pa. archts.

▲ **McCloskey & Co.**, 1620 W. Thompson St., Phila., Pa. CA. $2,000,000. BUILDING for use by Railway Express Co., PHILA., PA. Pennsylvania R. R., L. P. Struble, ch. engr. (Eastern Region), Suburban Station Bldg., 1617 Pennsylvania Blvd., Phila. 4, Pa. CD 9/13/51.

▲ **John A. Johnson & Sons, Inc.**, 303 41st St., Brooklyn, N. Y., CA. $1,793,000. Mill Creek HOUSING, PHILA., PA. Phila. Housing Auth., 42 S. 15 St., Phila., Pa. Bids June 4. CD 6/11, under LB.

▲ **Nolen Homes**, 2400 Pershing St., Roslyn, Pa. Separate Contracts. $4,000,000. RESIDENTIAL DEVELOPMENT, Woodland and Thompson Rds., ROSLYN, PA. George Daub, 2123 Delancey Pl., Phila., Pa., archt.

▲ **Edwin E. Hollenback**, 5624 Vine St., Phila., Pa. LB $1,036,946, JUNIOR HIGH SCHOOL, WEST CHESTER, PA. West Chester Joint High School Bd., 320 N. Church St., West Chester, Pa. Bids June 18. CD 6/8.

Curtis Building Co., 3039 Mt. Carmel Ave., North Hills, Pa. Separate Contracts. $800,000. RESIDENTIAL DEVELOPMENT, Clearview and Grovania Aves., WILLOW GROVE, PA. Henry S. Berg, 4111 Walnut St., Phila., Pa., archt.

▲ **Francis R. Shilling**, 323 W. Waverly Rd., Glenside, Pa. Separate Contracts, $3,500,000 RESIDENTIAL DEVELOPMENT, Northbent Rd., WYNCOTE, PA.

▲ **Alvin L. Aubinoe, Inc.**, 1515 19 St., Wash., D. C., CA. $1,400,000 8 story, National Home Building CENTER 1623-25 L St. N.W., WASH., D. C. National Association of Home Builders, 1028 Connecticut Ave. N.W., Wash., D. C. Aubinoe, Edwards & Berry, 1515 19 St. N.W., Wash., D. C., archts. CD 3/19.

▲ **Lewis-Skeel Constr. Co., Inc.**, P.O. Box 187, Wilmington, Del. CA. $4,000,000. RESIDENTIAL DEVELOPMENT, Garfield Park sect., WILMINGTON, DEL. Owner, c/o Don A. Loftus, P.O. Box 187, Wilmington, Del.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

Va., Charlottesville—B.A. 8/6—City, water filter plant, $300,000. Plans deposit $30. Wiley & Wilson, Peoples Natl. Bank Bldg., Lynchburg, engrs. CD 11/14.

BIDS ASKED—BUILDINGS

▲ **Ky., Paducah**—SCHOOL—B.A. 8/3—Paducah Independent School Dist., 2 story, brick, concrete block, stone high school, $3,500,000. D. Clarence Wilson, 1115 Harrison St., Mount Vernon, Ill., archt.

N. C., Asheville—NURSES HOME—B.A. 8/4—Memorial Mission Hospital of Western North Carolina, c/o Six Associates, Inc., archt. 1095 Hendersonville Rd., nurses home. $350,000. CD 3/2/50.

Ga., Columbus—HEALTH CENTER—B.A. 8/11—Muscogee Co., Court House, and City, City Hall, health center, $350,000. H. L. Crockett, 20 13th St., archt. CD 6/17.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Ford, Bacon & Davis, Inc.**, 39 Broadway, New York, N. Y. CA $1,200,000. natural gas compressor station, MACON, GA. Southern Natural Gas Co., Watts Bldg., Birmingham, Ala.

† **Nordberg Mfg. Co.**, 3073 S. Chase St., Milwaukee, Wis., CA. $527,752. install pumping equip. at Pumping Station 9, South River Canal and Levee 37, Fort Lauderdale, FLORIDA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. CD 6/9/44.

▲ **TENNESSEE**—State Hy. Dpt., Cotton States Bldg. Nashville,

Knoxville Constr. Co., River Terminal Rd., Knoxville, Tenn., CA $576,512, c. conc. or bit. materials paving 11.593 mi. Sect. State Rte. 34 from Knox Co. line and extending to Jefferson City, Proj. No. FI-034-1-(19), Jefferson Co.;

Wright Contg. Co., 504 25th Ave., Columbus, Ga., CA $535,461, c. conc. or bit. materials paving 5.561 mi. sect. State Rte. No. 2, from 0.5 mi. south of Martin Springs and extending towards Monteagle, Proj. No. FI 002-2 (19), Marion Co. Bids June 26, awarded July 6. CD 7/6, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Riggs Distler & Co., Inc.**, 216 N. Calvert St., Baltimore, Md., CA. $3,600,000. POWER HOUSE, boilers and generators, ROANOKE, VA. American Viscose Corp., 1714 9th St., Roanoke, Va. Bids 7/25/52.

King Development Co., Bragg Blvd., Fayetteville, N. C. Owner Builds. $375,000. SHOPPING CENTER, FAYETTEVILLE, N. C.

Merchants Development Co., c/o T. D. Carter, Reynolds Bldg., Winston-Salem, N. C. Owner Builds. $500,000. SHOPPING CENTER, WINSTON-SALEM, N. C.

▲ **S. J. Curry & Co.**, Albany, Ga., LB. $1,873,117. HIGH SCHOOL, ALBANY, GA. Dougherty Co. Bd. Educ., Albany, Ga. Bids July 8. CD 6/4.

H. C. M. Builders, Sherwood Ave., Augusta, Ga. Owner Builds. $350,000. 68 RESIDENCES, AUGUSTA, GA.

First Baptist Church, Warner Robins, Ga., Owner Builds. $300,000. CHURCH, WARNER ROBINS, GA.

▲ **Sarasota Co.**, Sarasota, Fla., rejected bids June 30, HOSPITAL, SARASOTA, FLA. LB. $1,679,000. Will re-advertise. CD 7/9, under LB.

J. C. McClendon Jr., P.O. Box 807, Gulfport, Miss. CA $334,025. PLANT for Mississippi Aluminum Corp., GULFPORT, MISS. City, Gulfport, Miss. CD 6/30, under LB.

James Adcock, Monroe, La. Owner Builds. $480,000. 48 RESIDENCES, BASTROP, LA.

Chris Larsen Co., Maritime Bldg., New Orleans, La. CA Est. $300,000. SHOPPING CENTER, NEW ORLEANS, LA. Sheppard M. Latter, 934 Gravier St., New Orleans, La. CD 1/10/46.

Sears, Roebuck & Co., 675 Ponce de Leon Ave., Atlanta, Ga., rejected bids June 8, pool stock warehouse, NEW ORLEANS, LA. $750,000. CD 5/27.

Ruby Lumber Co., Providence, Ky. LB $308,000. SCHOOL, HENDERSON, KY. City, Bd. Educ., Henderson, Ky. Bids July 6. CD 6/26.

F. T. Thayer, Jr., 170 Neil St., Memphis, Tenn. CA $350,000. CHURCH, MEMPHIS, TENN. Speedway Terrace Baptist Church, 601 N. Bellevue Blvd., Memphis, Tenn. CD 2/5.

Samuel N. Inman, Inc., 5534 Park Ave., Memphis, Tenn. Owner Builds. $580,000. 40 RESIDENCES, MEMPHIS, TENN.

▲ **Tri-State Constr. Co.**, Three Sisters Bldg., Memphis, Tenn. CA. $1,000,000. SHOPPING CENTER, MEMPHIS, TENN. Lamar-Airways Shopping Center Co., c/o contractor.

▲ **Southern Builders**, 1169 Jefferson Ave., Memphis, Tenn., CA $1,151,000, COLD STORAGE BLDG. and PACKING UNIT, MEMPHIS, TENN. Memphis Packing Co., Div. Armour & Co., Union Stock Yards, Chicago 9, Ill. CD 6/11.

▲† **Blount Bros. Constr. Co.**, P.O. Box 1148, Montgomery, Ala., LB. $2,215,962. 1-Bldg. of the DECONTAMINATION and RECOVERY BLDG., K-1420, OAK RIDGE, TENN. U. S. Atomic Energy Comm., P.O. Box

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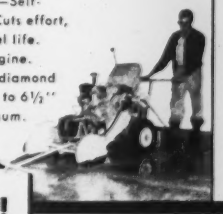

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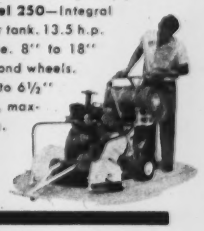

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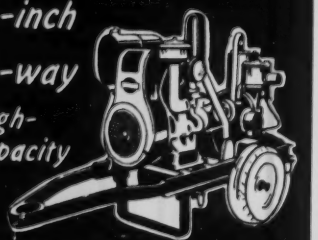

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E, Attention R. J. Dunbar, Oak Ridge, Tenn. Bids July 2. CD 6/18.

MIDDLE WEST

BIDS ASKED—BUILDINGS

Ind., Anderson—DORMITORY—B.A. 7/30—Anderson College, Dr. Jno. Morrison, pres., Anderson, 2 story bsmnt., brick, men's dormitory, $400,000, Miller & Henning, 514 Anderson Bank Bldg., archts. CD 4/1.

▲ Ill., Franklin Park—SCHOOL—B.A. 8/21—School District 212, 3400 Rose St., Leyden Twp. High School, $2,800,000. Sobel & Stein, 450 E. Ohio St., Chicago, Zone 11, archts. CD 2/3.

BUILDINGS

LOW BIDS AND CONTRACTS

George Sheaf & Co., 449 Neilston St., Columbus, O. LB $403,615. general constr. 2 story DORMITORY to house 360 inmates at London Prison Farm, LONDON, O. Dpt. P. Wks., State Office Bldg., Columbus, O. Bids Apr. 16. CD 4/9.

▲ Comte Constr. Co., 912 Summit St., Toledo, O. and Knowlton Constr. Co., 106 N. Main St., Bellefontaine, O. LB $1,130,000, general identical low base bids, Clay HIGH SCHOOL, Seaman and Stadium Rds.; TOLEDO, O. Bd. Educ., Oregon Twp., R. 5, Toledo, O. Bids June 30. CD 6/2.

J. L. Simmons Co., Inland Bank Bldg., Indianapolis 4, Ind. CA Est. $500,000. 3 story bsmnt., stone, brick BANK addn., Fifth and Washington Sts., COLUMBUS, IND. Irwin Union Trust Co., S. E. Lauther, exec. vice pres., Columbus, Ind. Awarded July 6. CD 2/24.

Sollitt Constr. Co., 301 S. Columbia St., South Bend, Ind., CA $350,000. FACTORY addn., SOUTH BEND, IND. Bendix Aviation Corp., Bendix Dr. South Bend, Ind. Awarded July 1. CD 6/19.

▲ Turner Constr. Co., 420 Lexington Ave., New York 17, N. Y., CA Est. $2,000,000. 63,000 sq. ft., 3 story concrete frame, limestone exterior walls, brick backup and aluminum sash, American Bar CENTER, 60th St. between University and Woodlawn Aves. CHICAGO, ILL. The American Bar Foundation, 1140 N. Dearborn St., Chicago, Ill. CD 5/21.

Kepler & Huth, 721 Ogden Rd., Downers Grove, Ill. Owner Builds $600,000. 50 HOMES, DOWNERS GROVE, ILL.

Seger & Sons, 470 Alma St., Elmhurst, Ill., LB $750,214. Jefferson SCHOOL, Crescent and Poplar Sts., Emerson School at West Ave. and Woodcrest, ELMHURST, ILL. School Dist. 46, Elmhurst, Ill. Bids July 1. CD 6/12.

Christensen Constr., 7108 W. Cermak St., Berwyn, Ill. Owner Builds. $600,000. 40 HOMES, in NORTH RIVERSIDE, ILL.

Conzelman Ryan, Inc., 523 S. Sheridan Rd., Waukegan, Ill. Owner Builds. $800,000. 75 HOMES, WAUKEGAN ILL.

▲ G. H. Pastor Co., 26445 W. Warren St., Dearborn, Mich. Owner Builds. $1,600,000. 150 brick HOMES, West Warren, River Rouge, Kennedy, Clairview, Elon and Rouge River Dr., DEARBORN, MICH.

▲ O. W. Burke Co., 1032 Fisher Bldg., Detroit, Mich. LB $3,972,000, superstructure for 190x250 ft. rein.-con., steel, granite and marble Henry and Edsel Ford Memorial AUDITORIUM, Woodward, Jefferson and Randolph Sts., DETROIT, MICH City, J. E. Frawley, pres. Memorial Hall Comn., Detroit, Mich. Bids July 8. CD 6/2.

WEST OF MISSISSIPPI

BIDS ASKED—BUILDINGS

▲ Neb., Grand Island—HIGH SCHOOL—B.A. 8/12—Bd. Educ., Grand Island, Senior High School. $1,500,000 F. N. McNett, Grand Island, archt. (Correction—Bid date.). CD 7/2.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Brown & Root, Inc., Box 3, Houston, Tex., CA. $319,000, compressor station, Wharton; $287,500, compressor station, Lufkin, TEXAS. Texas Illinois Natural Gas Pipe Line Co., 1114 Texas Ave., Houston, Tex. CD 6/19.

Alpha Constr. Co., Hamby, Tex., CA. $389,955, est. $385,000, 669.95 mi. rural pole telephone lines Hamby to Potosi, Williamson Co., TEXAS. Taylor Telephone Co-operative, Inc., Hamby, Tex. Bids May 8. CD 4/30.

Lone Star Gas Co., 1915 Wood St., Dallas, Tex., Own Forces. $245,000, transmission pipe lines, Bridgeport area, Wise and Jack Counties; $200,000, field gas-gathering lines, Jacksboro area, Wise and Jack Counties; $225,000, field compressor plant unit, near Jacksboro, Jack Co., TEXAS. Grand total $670,000. CD 7/19/50.

† Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., has let bid Feb. 26 acceptance expire and no award is contemplated furnishing, installing three 6,315 kva. vertical-shaft generators for Little Porcupine Power Plant, Missouri-Souris Div., Missouri River Basin Proj., Spec. DC 3864, MONTANA. CD 3/9, under LB.

† Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver, Federal Center, Denver, Colo., has let bid Feb. 26 acceptance expire and no award is contemplated one 16,500/22,000 kva transformer with lightning arresters and current transformers for Little Porcupine switchyard, Missouri-Souris Div., Missouri River Basin Proj., Spec. DS 3866, MONTANA. CD 2/5.

COLORADO—State Hy. Dpt., 518 State Office Bldg., Denver.

Lawrence Constr. Co., 112 S. Elati St., Denver Colo. CA. $167,774, est. $154,392. overpass structures and detour located at South University Blvd. and Valley Hy., Proj. UI 002-2 (26), Denver Co. Bids July 2.

† Bales & Kite, 112 E. 10 St., Kansas City, Mo. CA. $972,077, est. $837,761. earthwork, structures for Boulder Creek supply canal Station SV 518 plus 12.47 to 664 plus 38.5 with timber bridge decks, Colorado-Big Thompson Proj., Schedule 2, Spec. DC 3953, COLORADO. Bureau Reclamation, Dpt. Interior, Loveland, Colo. Bids June 10, awarded June 30. CD 6/23, under LB.

† Lembke, Clough & King, Box 455, Albuquerque, N. M. LB. $121,592. dental clinic, Kirtland Air Force Base, Serial No. Eng-29-005-53-98, ALBUQUERQUE, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids July 2. CD 6/17.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

California—STREET LIGHTING—B.A. 8/5—State Div. Hys., P. Wks. Bldg., Sacramento, street lighting, signals, intersection of El Camino Real, Atascadero-Charleston Rd., Santa Clara Co.

† California—B.A. 8/6—Bureau Reclamation, Dpt. Interior, P.O. Box 701, Goleta, earthwork, structures, pipe lines, etc., Laterals 1 to 22 Cachuma Proj., Carpinteria Distr. Sys., Santa Barbara Co., Spec. DC 3982. CD 4/14/44.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ Morrison-Knudsen Co., 319 Broadway, Boise, Idaho, CA. $4,000,000, new track yards and facilities, OGDEN, UTAH. Union Pacific R.R., W. C. Perkins, ch. engr., 141e Dodge St., Omaha 2, Neb. CD 7/7, under CA.

▲† A. J. Cheff Constr. Co., 10054 W. Marginal Way, Seattle, Wash., CA. $1,957,713, constr. Chandler Power and Pumping Station on Kennewick Div. of Yakima Reclamation Proj., Spec. DC 3950, WASHINGTON. Bureau Reclamation, Dpt. Interior, Kennewick, Wash. Bids June 11. CD 6/23, under Public Buildings.

▲† Campbell Constr. Co., 1150 Folsom St., San Francisco, Calif., LB. $2,989,634, est. $2,701,699 10 structural steel multi-purpose nose docks, Fairchild Air Force Base, Inv. 53-198, SPOKANE, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids July 8. CD 5/28.

▲† U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash., rejected bids May 8, double cantilever maintenance hangar, Fairfield Air Force Base, Inv. 53-99, SPOKANE, WASH. LB. $3,529,541. Project abandoned. CD 5/12, under LB.

CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento.

Erickson, Phillips & Weisberg, 350 Market St., Concord, Calif. LB $850,063. rein.-con. girder bridge across Petaluma Creek and over Northwestern Pacific R.R., Sonoma Co. Bids July 1. CD 6/10.

† Macco Corp. and Morrison-Knudsen Co., Inc., 14409 S. Paramount Blvd., Paramount, Calif. CA $747,000. repair and strengthen breakwater, Crescent City, Del Norte Co., CIVENG 04-203-53-6, CALIFORNIA. U. S. Eng., 180 N. Montgomery St., San Francisco, Calif. Bids June 9, awarded July 1. CD 6/24, under LB.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles.

Munn & Perkins & Paul E. McCollum, P.O. Box 1092, Modesto, Calif. LB $455,037. grade, surf. 4.8 mi. between Ague Dulce Canyon Rd. and Palmdale, Los Angeles Co. Bids July 2. CD 6/10.

▲ CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento.

Lord & Bishop and MJB Constr. Co., 322 Elks Bldg., Stockton, Calif. LB. $1,081,046. grading, surf. overcrossing 4.3 mi. between Ripon and Austin Rd., San Joaquin Co.;

Gordon H. Bell & San Ramon Valley Land Co., Camille Ave., Danville, Calif. LB. $620,917. grade, pave, constr. 2 rein.-con. bridges near Woodland Wye, Solano Co. Bids July 1. CD 6/10.

† Rogers Constr. Co., 3669 California St., San Diego, Calif. LB $179,362. rehabilitate Bldgs. No. 91, 102, and 104, Naval Radio Station NOY 78558, Spec. 38944, IMPERIAL BEACH, CALIF. Dpt. Navy, San Diego, Calif. Bids June 22.

McGuire & Hester, 796 66 Ave., Oakland, Calif. LB. $917,808. Schedule 1, outfall storm water conduit from San Francisco Bay to 34 and Helen Sts., OAKLAND, CALIF. City, City Hall, Oakland, Calif. CD 3/18.

Lee J. Immel, 3030 San Pablo Ave., San Pablo, Calif. LB. $112,719. reconstr. Cutting Blvd. from Carlson Blvd. to east city limits, RICHMOND, CALIF. City, City Hall, Richmond, Calif.

† U. S. Eng., Wright Bldg., Sacramento, Calif. rejected bids June 30, exten. Northeast/Southwest Runway No. 1, Spec. 1650, TRAVIS AIR FORCE BASE, CALIF. LB. $507,574. CD 7/8, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Williams & Burrows and Carl N. Swensen Co., 18 W. Orange St., South San Francisco, Calif. LB. $496,670. Male Ward Units 11 and 12, Sonoma State HOSPITAL, ELDRIDGE, CALIF. State, Div. Architec-

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ture, P. Wks. Bldg., Sacramento, Calif. Bids June 30. CD 6/3.

CANADA

BIDS ASKED—BUILDINGS

▲ **Que., Quebec City**—HOSPITAL—B.A. 8/3—Bd. Governors, Jeffrey Hale Hospital, 4 St. Cyrille St., hospital, St. Sacrement and Ste. Foy Rd. $2,850,000. Neergaard, Agnew & Craig, 134 Bloor St. W., Toronto, Ont., engrs. CD 11/15/51.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Columbia Engineers Ltd.**, Kamloops, B. C., CA, $6,000,000, oil REFINERY, KAMLOOPS, B. C. Kamloops Refinery Syndicate, c/o Royalite Co., Ltd., Calgary, Alta. CD 12/12.

Richard & B. A. Ryan Ltd., 49 Main St., Fairville, St. John, N. B. CA Est. $700,000. 4 story, bsmt., 74x117 ft., rein.-con., brick, stone OFFICE, HALIFAX, N. S. Imperial Oil Ltd., King and Church Sts., Toronto, Ont. Bids June 26, awarded July 7. CD 6/15.

W. G. How, 246 Dunlands Ave., Toronto, Ont. CA Est. $500,000. 2 story, steel, concrete, brick HOSPITAL, PENETANGUISHENE, ONT. General Hospital Bd., J. Turcotte, chn., Penetanguishene, Ont. C. C. Woods, 2842 Bloor St. W., Toronto, Ont., archt. CD 3/24/49.

Lemieux Constr. Ltd., 5420 Pie IX Blvd., Montreal, Que. CA Est. $600,000. 3 story 60x136 ft., and 3 story, 50x65 ft., concrete, steel, brick APARTMENT on Jarry St., MONTREAL, QUE. Jean Jobin, 463 W. Ste. Catherine St., Montreal, Que. CD 6/18.

▲ **Westhill Constr. Co. Ltd.**, 5950 Cote des Neges Rd., Montreal, Que. Owner Builds. $1,500,000. ten concrete, steel, brick APARTMENT blocks, Jeanne St. and Grenet St.; $650,000. 8 story, bsmt., concrete, steel, brick APARTMENT, Simpson St., MONTREAL, QUE. Greenspoon & Assoc., 4151 W. Sherbrooke St., Montreal, Que., archts.

ALASKA

HEAVY CONSTRUCTION

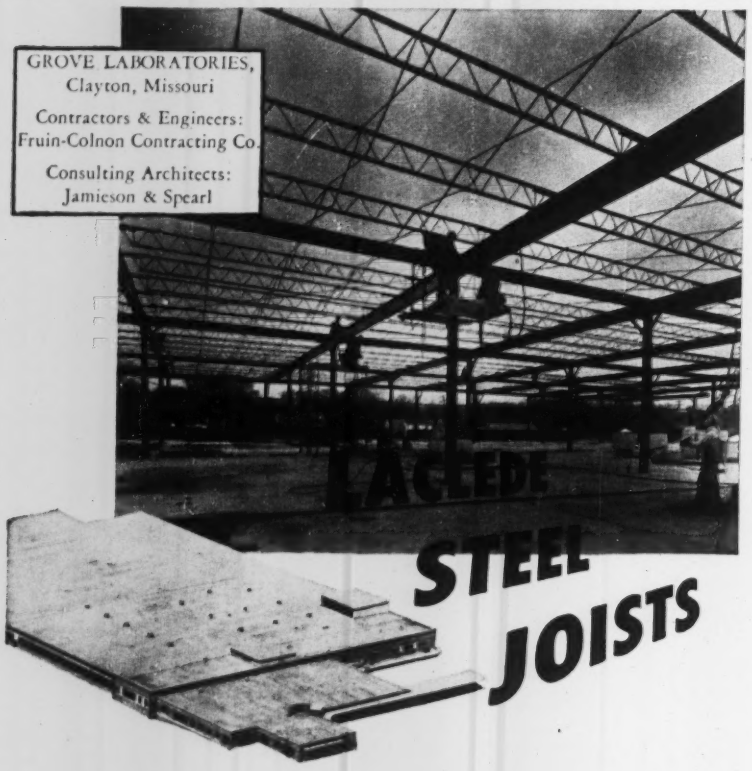
LOW BIDS AND CONTRACTS

† **Chris Berg, Inc.**, 2730 Westlake Ave. N., Seattle, Wash., CA $617,146. aircraft maintenance shop, Inv. 53-76, Eielson Air Force Base, ALASKA. U. S. Eng., Anchorage, Alaska. Bids June 9. CD 6/15 under LB.

FOREIGN

BIDS ASKED—HEAVY CONSTRUCTION

New South Wales—B.A. 11/30—At Head Office of the Snowy Mountains Hydro-Electric Auth., Box 32, P.O., Cooma, 4S, N.S.W., Australia, Contr. No. 20,002, Eucumbene-Tumut Tunnel and appurtenant works, incl. concrete-lined tunnel 21 ft. diam., 13.8 mi. long, etc. incl. access tunnel 4,000 ft. long, intake shaft 18 ft. diam., 300 ft. deep, two gate shafts, one 200 ft. and the other 380 ft. deep; concrete division dam approx. 100 ft. high, 260 ft. long at crest level; Contr. No 20,003, Tumut Pond Dam and T-1 pressure tunnel, concrete arch dam approx. 290 ft. high with crest length of approx. 715 ft., concrete-lined pressure tunnel 21 ft. diam., 8,000 ft. long and underground surge chamber; Contr. No. 20,004 T-1, power station, pressure shafts and tailrace tunnel, 55x330 ft., by 110 ft. high underground power station with machine hall, underground transformer hall; 2 steel lined pressure shafts each 12 ft. diam., 830 ft. depth, tail-race tunnel 4,000 ft., an access tunnel 1,200 ft., power station to contain 4 hydraulic turbines, and generator sets each of 80,000 kw., the supply, installation of hydraulic turbines and generators with appurtenant electrical equip. not part of this contract., above work situated in the Snowy Mountains in southeastern part of State of New South Wales, Australia. Plans deposit $25 each. CD 7/2.



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Proposed Projects——

WATER SUPPLY

▲ **Mass., Brockton**—City, Water Dpt., City Hall, water sys. imprvs. $1,500,000. Hayden, Harding & Buchanan, 810 Park Square Bldg., Boston, consult. engrs.

▲ **O., Dayton**—Miami Conservancy District, 38 E. Monument St., Zone 2, create sub-district to imprv. water supply in Montgomery, Miami, Shelby, Warren, Butler and Hamilton Counties, involving 5 earth dams. $5,000,000.

▲ **Okla., Oklahoma City**—City, City Hall, voted bonds June 30, 80 shallow wells and equip. $2,000,000. M. B. Cunningham, city engr. CD 6/18.

▲ **Tex., San Antonio**—City Water Bd., 106 W. Market St., pumping unit at Mission Station, 18-ton unit to rest on 260-ton concrete fdn., $850,000; water main on south side as an exten. to newly developed area, $55,000; some water lines rehabilitation work on extreme south side area, $75,000; 8 in. c.i. water main, west from Sierra and Sayers Sts. to tie on to main line at S. Flores St. $80,000; 10 in. c.i. water main from Quintark St. on to Mission, $90,000; 16 in. c.i. water main to extend along east side of the river, starting at Mission Station, $145,000.

SEWERS, WASTE DISPOSAL

▲ **Calif., Long Beach**—City, 205 W. Broadway, constr. Seaside Blvd. storm drain, 15,635 ft. gravity portion. $1,000,000. Morgan & Assoc., Farmers & Merchants Bldg., consult. engrs. CD 12/6/44.

▲ **Neb., Lincoln**—City, City Hall, storm sewers. $1,500,000. D. L. Erickson, city engr. CD 12/14/51.

BRIDGES

▲ **Calif., Long Beach**—City, 205 W. Broadway, hy. bridge and 3 railroad bridges in connection with development of Alamitos Bay Masina, $1,900,000, J. H. Davies, 730 E. 3 St., consult. engr.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Metropolitan Dist. Comn., 20 Somerset St., Boston,
Cambridge—overpass traffic circle on Soldiers Field Rd. at Boyiston St., $1,000,000.
overpass traffic circle on Soldiers Field Rd at Western Ave., $1,000,000.
East Cambridge—overpass and circle at Prison Point on Northern Artery, $1,500,000.
Everett—bridge over B. &. M. R.R. on Revere Beach Parkway. $500,000.
Medford—bridge over Malden River on Revere Beach Parkway. $2,200,000, CD 11/11.
Somerville—overpass at Washington St. on Northern Artery, $800,000.
bridge at Squire's Plant on Northern Artery, $800,000. CD 4/18/52.

STREETS AND ROADS

▲ **Tex., Houston**—Harris Co., Court House, voted bonds June 27, road and bridge constr., imprvs., paving in various sections of the county, $3,791,112;
Aldine Mail Route Rd. extens., asph. paving Aldine Westfield Rds. to U.S. Hy. 59, 2½ mi., $127,500.
Aldine—Westfield Rd., asph. type paving, from Humble-Westfield Rd. to Spring School Rd., $200,600.
Bingle Rd.—asph. paving and small concrete bridge 1.65 mi. $69,827.
Bissonnet Ave., rebuilding and hard type paving, Edloe to Wake Forrest St., $224,900.
Blalock Dr.—asph. paving 1.57 mi., $78,028.
Braeswood St., 2-lane extens., south to Main St. $72,500.
Clay Rd., asph. type paving and imprvs. 1.6 mi., $63,912.
DeWalt St., asph. paving and imprvs. 2.66 mi., $87,700
Firnal St., imprvs. asph. topping 1.48 mi., Hirsch Rd. to Barclay subdivision, $60,000.
Granville St. asph. type paving and imprvs. 1.2 mi., $66,200.

Green's Rd., Imprvs., and asph. surf. 4.3 mi., Aldine-Westfield Rd. to Hy. 59, $166,500.
Hardy St. 1 mi. four-lane, will eliminate 8 railway crossings, $3,727,900.
Hartly Rd. and Bertrand St., road and bridge work, $63,800.
Hartley and Homestead Rds., bridge and road work, $62,260.
Huffmeister Rd.—asph. type paving and imprvs., 1¾ mi., $100,258.
Katy-Hockley Rd., asph. type paving 2 mi. $77,000.
Kirby Dr. extens., $60,000.
Lee Rd., imprvs. and asph. type paving 5.6 mi. Humble to Humble-Westfield Rd., $207,700.
Lockwood Dr. and Homestead Rd.—imprvs. to portions of road, $77,000.
Lockwood Drive Proj., rebuilding narrow topped roadway with four-lane street, $821,720.
McGallian Rd., asph. paving, Turner to Abner Rds. and from Tidwell to Turner Rds., $60,700.
Meredian St., asph. paving 1.48 mi., $60,000.
Mitchell Rd., imprvs. and asph. paving 2½ mi. portion W. Hardy St., $85,140.
Mosher Lane, Helms Rd. and Mimosa Dr., asph. type paving, $82,600.
Old Atascosito Rd., asph. surf., imprvs. 7.1 mi. Old Humble Rd. to Humble-Westfield Rd., $257,000.
Palm Dr., Dollywright and Priest Sts., asph. paving, $77,700.
Pearson Ave. Main St. exten., and portion Fairbanks-Rosslyn Rd., asph. type paving 6.25 mi., $290,515.
Reid Rd., asph. paving and some imprvs. 8½ mi., $356,576.
Rice Rd., asph. type paving, imprvs. 1.37 mi., $60,000.
Richmond Ave., new four-lane street, Bissonnet Southwest to Academy St., $207,000.
Rittenhouse Rd., asph. type paving 2½ mi., Little York to E. Montgomery Rds., $127,000.
San Felipe Rd., four-lane widening, Timberland Dr. to River Oaks Blvd., $80,000.
Spring-Steubner Rd., asph. paving 5.3 mi., Kuykendahl Rd. to East Montgomery Rd., $166,000.
Stella Link Rd., four-lane widening, $407,400.
Steubner Airline Rd., asph. type paving 3.1 mi. Cypress Creek to Spring Cypress Rd., $146,000.
Sweetwater Lane and Zable Rd., asph. type paving, $61,000.
Swetview Dr.—road imprvs. 1¾ mi., $61,390.
Telge Rd., asph. paving 5.68 mi., $169,343.
Tidwell Rd.—asph. surf., 2½ mi., Humble to Camp Rds., $110,000.
Voss Rd. exten., some asph. paving and small concrete bridge, $60,000.
West Hardly St. exten. North, asph. paving 1.28 mi. Albers Rd. to Gulf Bank Rd., $69,000.
West Little York Rd., road imprvs. and asph. paving 2 mi., $121,933.
Witte Rd., asph. type paving 2.1 mi., $76,663.
69th St. Proj., 1½ mi. long, to be opened up and paved as a relief street, $1,585,000.
four-lane road spur, from Post Oak Rd. to S.P. Ry. underpass in Memorial Dr. area. $105,000.
elimination of bad "S" out of a street near Woodway Dr. and South Post Oak Lane, $63,100. H. R. Jensen, co. road engr. CD 5/18, 6/15.

Tex., Port Neches—City, cancelled bond election July 21, street imprvs., paving, $875,000. CD 6/23.

▲ **Tex., San Antonio**—Bexar Co., Court House, Precinct 1, road constr. and imprvs. throughout the precinct. $1,250,000. C. I. Swan, co. road engr. CD 10/2/51.

EARTHWORK, WATERWAYS

▲ **Tex., Houston**—Harris Co., Court House, voted bonds June 27, flood prevention, drainage, Sim's Bayou channel work, $2,200,000; general county wide drainage in 22 watersheds in every sect. of Harris Co. $1,000,000; flood prevention proj. White Oak Bayou Channel changes, $1,575,000; flood prevention proj., drainage, imprv. Poor Farm Ditch from Alief Rd. to Buffalo Bayou, $775,000; flood prevention proj., imprv. Buffalo Bayou, $400,000; imprv. Brayou's Bayou Channel, etc. $5,050,000. H. R. Jensen, county road engr. CD 5/19.

AIRPORTS

Mass., East Boston—CONTROL TOWERS—State, Airport Management Bd., Gen. Boutwell Bldg., Logan International Airport, Contr. L-401, masonry control towers communications station, Logar International Airport, $750,000. CD 6/18/43.

PUBLIC BUILDINGS

▲ **Calif., Paramount**—SCHOOLS—Paramount Unified School Dist., 15324 California Ave., voted $2,750,000 bonds, June 18, schools. CD 5/12.

▲ **Ia., Waterloo**—SCHOOLS—Bd. Educ., Waterloo, $3,000,000 bond election Aug. 3, schools and schools addns.

▲ **Kan., Olathe**—SCHOOLS—Rural High School Dist. No. 5, Johnson Co., K. L. Smith, clk., plans by Kivett & Myers, 1016 Baltimore St., Kansas City, Mo., Southeast Junior High School, $1,500,000; plans by E. L. Peterson & H. A. Scharhag, 1103 E. Armour St., Kansas City, Mo., Northeast Junior High School, $1,500,000; plans by Marshall & Brown, 1016 Baltimore St., Kansas City, Mo., Southwest Junior High School, $1,500,000; plans by R. L. Voskamp & F. R. Slezak, 112 E. 10 St., Kansas City, Mo., Northwest Junior High School, $1,500,000. CD 6/2.

Mass., Boston—RECEPTION DETENTION—State, Youth Service Bd., 14 Somerset St., Boston, plans by Aisner & Atwood Assoc., 10 Newbury St., Y-402, masonry, rein.-con. reception-detention bldg. Canterbury St., Dorchester. $900,000.

▲ **N. Y., Albany**—HEATING PLANT—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, heating plant, incl. alterations to Page and Huested Bldgs., at State College for Teachers. $1,000,000. CD 6/29/45.

▲ **N. Y., Central Islip**—STOREHOUSE, LAUNDRY, etc.—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, new storehouse, incl. butcher shop, bakery and related facilities, $2,900,000; laundry, $1,100,000; service connections for new and existing bldgs., $2,300,000; new fire alarm sys. $110,000; addnl. water supply, $45,000, foregoing at Central Islip State Hospital. CD 11/28/45.

▲ **N. Y., Ithaca**—BUILDING, etc.—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, agricultural engineering bldg., $2,500,000; exten., imprv. water supply sys. $375,000, at New York State College of Agriculture, Cornell University. CD 7/18/46.

▲ **N. Y., Kings Park**—TREATMENT—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, continued treatment bldg., at Kings Park State Hospital. $5,000,000.

▲ **N. Y., Marcy**—MEDICAL-SURGICAL—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, medical-surgical bldg., Marcy State Hospital, $6,000,000. CD 7/12/45.

▲ **N. Y., Middletown**—PATIENTS BLDG., etc.—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, bldg. for 200 senile patients, $1,000,000; storehouse and cold storage bldg. $1,300,000, at Middletown State Hospital. CD 11/29/44.

▲ **N. Y., Potsdam**—MUSIC—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, music bldg., incl. service connections and imprvs. to grounds at State Teachers College. $1,000,000. CD 1/7/44.

▲ **N. Y., Queens Village**—SERVICE CONNECTIONS, POWER PLANT—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, service connections for new bldgs. $850,000; addnl. power plant facilities, $1,630,000, Creedmoor State Hospital.

▲ **N. Y., Syracuse**—LABORATORY—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, wood products laboratory at New York State College of Forestry, Syracuse University, $3,000,000. CD 7/11/45.

▲ **Tenn., Lawrenceburg**—PLANTS—City, voted bonds July 2, constr. industrial plants. $1,000,000. CD 3/3/52.

▲ **Tex., Austin**—OFFICE LIBRARY, etc.—University of Texas, Admin. Bldg., Austin, plans by Mark Lemmon, superv. archt., 1210½ Main St., Dallas, and Broad & Nelson, assoc. archts., 505 N. Ervay St., Dallas, combined ROTC office, classrooms, storage, $400,000; general remodeling certain group old bldgs., $750,000; office and classrooms, $950,000; remodeling library, $375,000. CD 4/29.

▲ **Tex., Austin**—DORMITORIES, etc.—University of Texas, Admin. Bldg., plans by Wilson, Morris & Crain, 3330 Graustark St., Houston, 39,071 sq. ft. brick exterior, steel frame 206 law and graduate students dormitory, $686,000, Walter P. Moore, 2 Pinedale St., and Dale S. Cooper & Assoc., 420 Sul Ross St., Houston, consult. engrs.; plans by Jessen, Jessen, Millhouse & Greeven, assoc. archts., 2816 N. Guadalupe St., Austin, Mark Lemmon, superv. archt., 1210½ Main St., Dallas, 4 story masonry women's dormitory, $1,108,000-$1,200,000. R. L. Rolfe, 1401-A Bryan St., Dallas and Zumwalt & Vinther, Mercantile Sec. Bldg., Dallas, consult. engrs.; plans by Page, Southerland & Page, 602 West Ave., Austin, 4 story, 52,700 sq. ft. dormitory for 308-men students, $1,100,000, cafeteria, $350,000, Robert J. Cummins, Bankers Mortgage Bldg., Houston and Zumwalt & Vinther, Mercantile Sec. Bldg., Dallas, consult. engrs. Robert L. White, c/o owner, university archt. CD 5/15 and 5/27.

▲ **Tex., Houston**—CRIMINAL COURTS, etc.—Harris Co., Court House, voted bonds June 27, remodeling Old Criminal Courts Bldg., $880,000; remodeling old Civil Courts Bldg., $620,000. H. R. Jensen, co. road engr. CD 5/18.

▲ **Wash., Richland**—SCHOOLS—School Bd., Richland, elementary school, $700,000; high school addn., $900,000; Third Junior High School, $480,000. CD 4/20/50.

▲ **Wash., Walla Walla**—MESS HALL, etc.—State Dpt. P. Institutions, Olympia, mess hall and kitchen at state prison. $1,000,000. CD 6/25/45.

▲ **Alta., Red Deer**—HOUSING—Canada Central Mortgage & Housing Corp., Ottawa, Ont., project abandoned. 200 housing units. $1,500,000, K. F. Hurst, 400 Kensington Bldg., Winnipeg, Man., engr. CD 4/3.

▲ **Que., Three Rivers**—HOSPITAL—Ste. Marie Hospital Bd., 12435 St. Croix St., Montreal, plans by Gagnier & Assoc., 1449 Crescent St., Montreal, 100-bed hospital addn. $1,500,000. CD 6/23, under Commercial Buildings.

COMMERCIAL BUILDINGS

▲ **Ill., Chicago**—HIGH SCHOOL—St. Scholastica School for Girls, 7416 N. Ridge Ave., plans by Frank J. Serpico, 4800 Milwaukee Ave., 3 story, bsmt. high school addn. $1,500,000.

N. Y., Astoria—SCHOOL and CONVENT—Our Lady of Mt. Carmel Church, Astoria Blvd. and Crescent St., plans by William Boggel, 12 E. 48 St., New York, Zone 17. 5 story, 63x174 ft. school and convent, Newtown Ave. and 23 St. $850,000.

▲ **O., Cleveland**—ART SCHOOL, etc.—Cleveland Institute of Art, 11441 Juniper Rd., plans by Garfield, Harris, Robinson & Schafer, 1740 E. 12 St., Zone 14, art school and exhibition center, incl. classrooms, exhibition galleries, auditorium, restaurant, etc., Bellflower Rd. and East Blvd. $1,000,000.

▲ **O., Cleveland**—HOSPITAL—University Hospitals, 2064 Adelbert Rd., plans by Garfield, Harris, Robinson & Schafer, 1740 E. 12 St., Zone 14, 5 story, brick psychiatric hospital, adjacent to Lakeside Hospital and Hanna House on Abington Rd. to be known as Howard M. Hanna Memorial Hospital. $2,250,000.

▲ **Tex., Dallas**—APARTMENTS—Lewis & Lamberth, 3918 Gaston St. and Laughlin & Silver, 1009 Elm St., Unit No. 1, 12 two story masonry apartments, $499,800; Unit No. 2, 15 two story masonry apartments, $2,499,000; Unit No. 3, 17 two story masonry apartments, $2,832,200; Unit No. 4, 7 two story masonry apartments, $1,166,200; Unit No. 5, 8 two story masonry apartments, $1,332,800 on Northwest Hy. opposite Knights of Columbus Club House.

▲ **Tex., Houston**—OFFICE—Old National Insurance Co., 2505 Travis St., plans by Duryea & Elkins, 910½ Westheimer St., 65,000 sq. ft. brick, terra cotta and glass office, Fannin St., opposite Warwick Hotel. $1,000,000. Howard & Johnson, Scanlan Bldg., and Walter P. Moore, 4605 Montrose St., consult. engrs. CD 11/3.

▲ **Wis., Milwaukee**—DORMITORY—Marquette University, 615 N. 11 St., plans by E. Brielmaier & Sons Co., 735 N. Water St., Zone 2, men's dormitory. $1,180,000. CD 10/2/51.

▲ **Que., Three Rivers**—COLLEGE—Rev. Peres Franciscans, 1274 Laviolette St., College Seraphique. $1,000,000. CD 11/10/48.

INDUSTRIAL BUILDINGS

▲ **Ill., Northbrook**—FACTORY—Barrett-Cravens Co., 4613 S. Western Ave., Chicago, plans by A. Epstein & Sons Co., 2011 Pershing Rd., Chicago, Zone 9, factory and warehouse, Dundee Rd. $1,500,000. CD 2/18.

▲ **Ill., Tuscola**—PLANT—National Petro-Chemical Corp., Tuscola, constr. addn. to produce synthetic ammonia and fertilizer nitrogen compounds. $7,000,000.

▲ **Ind., New Albany**—POWER PLANT—Public Service Co. of Indiana, Inc., 1000 E. Main St., Plainfield, power plant, 170-acres in First purchase. $45,000,000, incl. site.

▲ **O., Cleveland**—REFINED PRODUCTS DISTRIBUTION CENTER—Standard Oil Co. of Ohio, Midland Bldg., refined products distr. center on 50 acre tract facing E. 49 St., incl. tank storage facilities for 250,000 bbls., five truck loading racks, office bldgs. and truck maintenance garage, Cuyahoga Heights, $2,500,000.

▲ **O., Cleveland**—ROD MILL—United States Steel Corp., American Steel & Wire Div., Rockefeller Bldg., rod mill with capacity of 450,000 tons per year, incl. rod and billet storage areas (rolling range from 7/32 of an inch to 1½ in.) at Cuyahoga Works E. 49 St. and Harvard Ave. $10,000,000.

▲ **Ont., Hamilton**—PLANT—National Slag Ltd., c/o Standard Paving & Materials Ltd., Harbor Comm. Bldg., Toronto, plant to process blast furnace slag for concrete aggregate. $1,000,000.

▲ **Que., Chibougamau**—PLANT—Campbell Chibougamau Mines Ltd., 625 W. Dorchester St., Montreal, processing plant. $7,000,000, General Eng. Co. Ltd., 100 W. Adelaide St., Toronto, Ont., consult. engrs.

▲ **Que., Chibougamau**—PLANT—Opemiska Copper Mines Ltd., 25 W. King St., Toronto, processing plant, $4,000,000.

UNCLASSIFIED

▲ **Maryland**—TUNNEL—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2, and City of Baltimore, Bureau Hys., 303 Municipal Bldg., Baltimore, Zone 2, 4 lane double tube vehicular tunnel (Patapsco Crossing) from Caton to Fort McHenry and Fairfield at Baltimore Harbor. $70,000,000. Singstad & Baillie, 24 State St., New York 4, N. Y., J. E. Greiner Co., 1201 St. Paul St., Baltimore, and Joseph K. Knoerle Assoc., Inc., 824 N. Calvert St., Baltimore, consult. engrs.

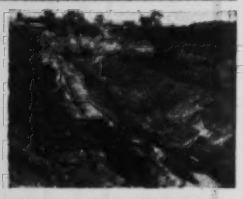
▲ **Minnesota**—RURAL DISTRIBUTION LINES—Arrowhead Electric Co-operative, Grand Marais, 183 mi. rural distr. lines, 60 mi. 68 KV transmission line, 705 KW diesel generating plant, sys. imprvs., Cook Co. $1,100,000.

South Dakota—RURAL DISTRIBUTION LINES—Sioux Valley Empire Electric Assn., Inc., Colman, 321 mi. rural distr. lines, 57 mi. tie lines; 8 mi. transmission lines, sub-station and headquarters facilities, Minnehaha Co. $975,000. Buell & Winter, 508 Insurance Exchange Bldg., Sioux City, Ia., consult. engrs. CD 12/6/50.

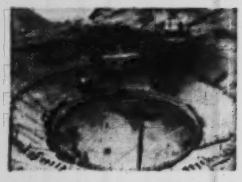
▲ **Texas**—OIL LINE, etc.—Magnolia Pipe Line Co., Magnolia Bldg., Dallas, 154 mi. 16 in. welded joint crude oil line, Ringgold to Corsicana (terminal), $5,740,000; all-electric main pump station, Ringgold, $400,000; 240,000-bbl. crude oil storage facilities at tank farm, Ringgold, $175,000.

WET JOBS

Whether it's HEAVY CONSTRUCTION

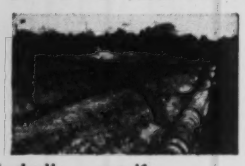


BUILDINGS



SEWERAGE

or any other type of wet work



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UNIT PRICES

Highway, California

Five miles of freeway construction consisting of grading and surfacing with plant-mix on a cement treated base; construction of six bridges; and widening of one bridge were awarded by the California Department of Public Works to Piombo Construction Co., San Francisco. The $3,749,133 Piombo bid was the lowest of seven submitted.

Wage rates on the ten-month project are: structural iron workers, $2.85 per hr; hoisting engineers, $2.66 per hr; and common laborers, $1.85 per hr. Bidders include:

1C Piombo Const Co., San Francisco, Calif.	$3,749,133
2 L. C. Smith Co. San Mateo Calif.	3,749,630
7 Guy F. Atkinson, Co., South San Francisco, California	4,624,244

Bids: 5-27-53 Item	Unit	Quantity	Unit Prices 1 C	2
Remove concrete	cy	465	$10.00	$4.20
Remove traffic stripe	lf	74,250	0.13	0.10
Clearing & Grubbing	ls	1	50,000	35,000
Roadway excavation	cy	247,400	0.13	0.30
Structure excavation	cy	31,800	3.80	2.00
Mud stripping	cy	78,000	0.50	1.00
Ditch & channel exc	cy	16,500	0.75	1.25
Compact original ground	sy	56,000	0.06	0.08
Imported borrow, type A	t	1,740,000	0.71	0.68
type B	t	87,600	1.85	2.00
Rock blanket material	t	9,200	4.90	3.65
Vertical holes (sand drain)	lf	94,700	0.45	1.11
Sand backfill & blanket (sand drain)	t	35,600	2.85	3.00
Salvage & relay base mat	cy	22,300	0.65	0.90
Sand backfill (abandoned structures)	t	1,280	3.90	4.00
Imported base material	t	263,300	1.15	1.22
Dev water supply & furnish water equipment	ls	1	15,000	40,000
Apply water	mgal	49,500	1.40	0.80
Finish roadway	ls	1	3,000	8,000
PC (cmt treated base)	bbl	15,600	3.50	3.90
Mix & compact (cmttr base)	sy	223,000	0.22	0.25
Untreated rock base	t	35,000	2.60	2.65
Reconstruct exist shldr	sy	32,500	0.20	0.18
Liquid asph SC-1 (pen tr & pr ct)	t	345	33.00	30.80
SC-2 (pen tr)	t	90	33.00	30.00
Asph emulsion (pnt bndr, cur sl & sl ct)	t	397	37.00	32.00
Sand (penetration treatment)	t	320	6.70	5.00
Screenings (seal coat)	t	1,250	6.90	7.00
Mineral aggregate (PMS)	t	49,500	5.40	4.00
Liquid asph SC-4 (PMS)	t	35	5.40	23.00
Paving asphalt (PMS)	t	2,440	5.40	23.00
Place plant-mix ditch lining	sf	167	1.50	0.20
Raised traffic bars	lf	410	2.00	1.60
Cl A PC conc (structures)	cy	3,590	52.00	50.00
Structural steel	lb	1,180,000	0.13	0.1075
Clean & paint str stl	ls	1	15,500	14,654
Miscell iron & steel	lb	30,400	0.30	0.30
Treated redwood timber	mfbm	12	200.00	340.00
Furn untr timber piling	lf	1,220	1.20	0.95
Drive timber piles	ea	61	65.00	82.00
Furn conc piling	lf	18,626	3.40	4.45
Drive conc piles	ea	408	70.00	71.00
Furnish steel piling	lf	7,369	3.80	4.80
Drive steel piles	ea	70	84.00	85.00
Steel pile splices	ea	79	31.00	35.00
Broken conc riprap	cy	140	12.00	15.00
Cl B PC conc (curbs, gutters, sidewalks)	cy	2,040	37.50	32.00
Curb dowels	ea	150	1.00	1.00
Right of way monuments	ea	20	6.00	6.90
Survey monuments	ea	40	30.00	25.00
Portable timber barricade	ea	160	42.00	25.00
Steel railing	lf	2,352	8.80	7.75
Corr met bridge railing	lf	215	8.80	5.00
Salvage exist guard rail	lf	970	1.40	1.30
Reconstruct salv guard railing	lf	970	1.70	1.60
Guide posts & markets	ea	820	6.00	6.50
Horiz reflector units	ea	35	8.20	8.50
36" chain link fence (wire top)	lf	12,900	0.90	0.77
72" (rail & wire top)	lf	27,600	1.50	1.55
New property fence	mi	6	1,900	1,854
Reinf conc pipe 12", type A, std str	lf	192	3.20	3.55
12", type A, 3000-D	lf	48	3.50	3.60
12", type B, std str	lf	2,200	5.20	5.00
12", type B, 3000-D	lf	104	5.40	5.15
15", type B, std str	lf	136	6.50	5.90
18", type B, std str	lf	2,648	7.80	7.00
18", type B, 3000-D	lf	68	8.00	7.15
21", type B, std str	lf	400	9.20	8.20
21", type B, 3000-D	lf	88	10.80	9.80
24", type B, std str	lf	1,000	10.60	9.40
27", type A, std str	lf	96	7.60	8.20
27", type B, std str	lf	868	12.15	11.30
30", type B, std str	lf	736	13.70	12.90
45", type B, std str	lf	1,028	22.30	20.50
48", type B, std str	lf	800	24.10	22.00
Corr met pipe, 54" 12 ga	lf	60	20.80	15.85
Nestable pipe cover, 48", 12 gauge	lf	568	14.40	17.00
Salv existing pipe culv	lf	540	2.00	1.50
Relay salvaged corr metal pipe culvert	lf	540	2.00	1.50
Bar reinforcing steel	lb	471,800	0.09	0.793
Automatic drainage gates 18"	ea	2	40.00	45.00
21"	ea	1	50.00	60.00
27"	ea	1	90.00	90.00
48"	ea	1	240.00	240.00
Welded steel pipe (10 ga) 8"	lf	78	3.00	7.00
Manhole pipe seal	ea	1	20.00	50.00
Adjusting MH to grade	ea	6	30.00	35.00
Salv MH frames & covers	ea	10	6.00	20.00
Reinstall salv MH frame & covers	ea	3	25.00	25.00
New manholes	lf	17	40.00	35.00
Sign frames	ls	1	1,500	1,700
Metal plate guard railing	lf	7,270	3.20	3.10
Remove & salv traffic signal & hwy light	ls	1	1,273	1,216
Electrical work on struct	ls	1	3,900	3,675
Highway lighting	ls	1	70,000	67,025
Illuminated signs	ls	1	6,500	6,205

Floodway approaches, La.

Work is under way on the $341,345 Morganza floodway approach project awarded by the Louisiana Highway Department to W. R. Aldrich & Co., Baton Rouge, La., the lowest of four bidders.

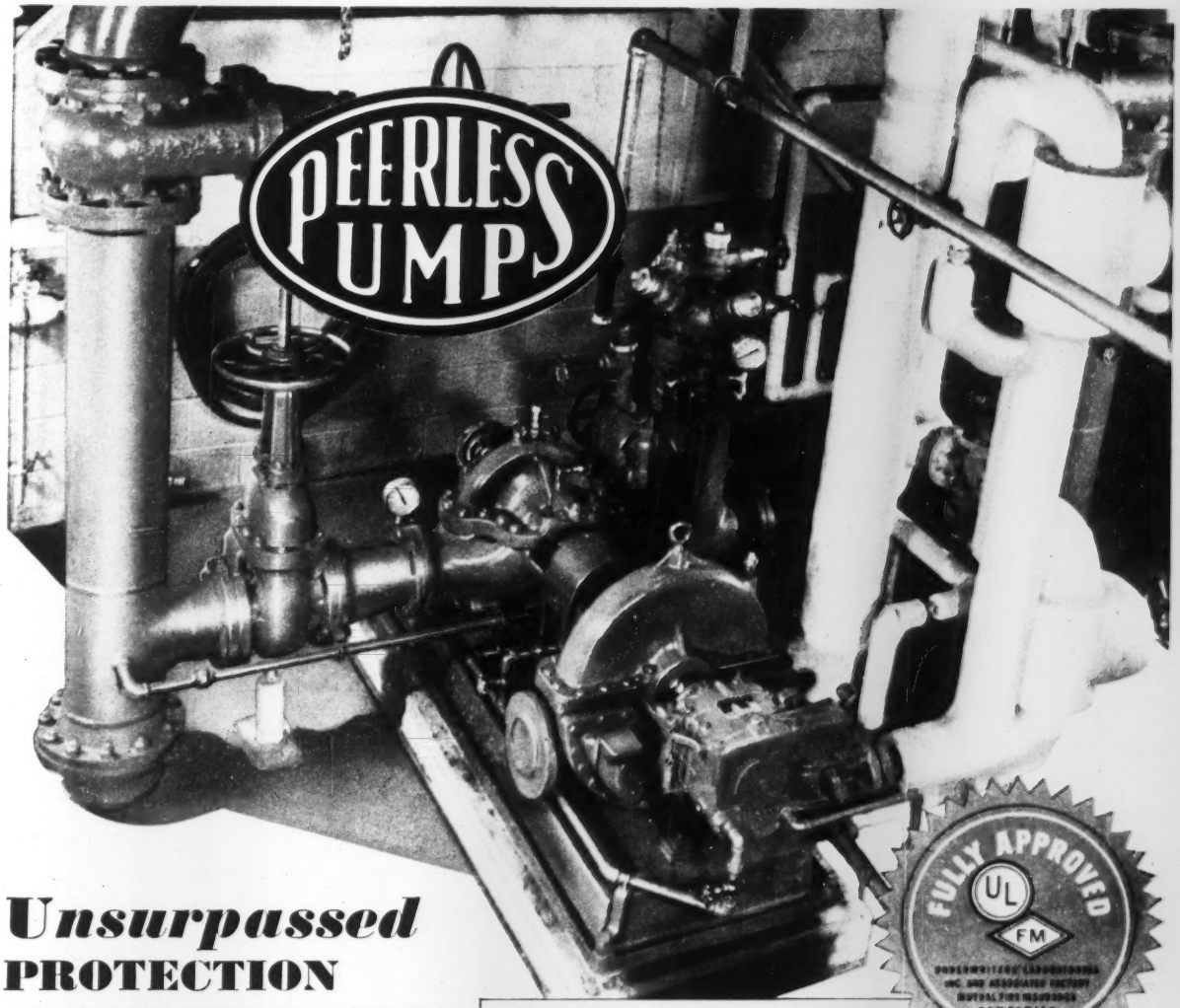
The job consists of 4,534 miles of earthwork approaches with a temporary surface of bituminous surface treatment to the combination railroad-highway high-level concrete structure in the Morganza floodway.

Borrow material for the embankment was being furnished by the owner.

Bidders include:

1C W. R Aldrich & Co., Baton Rouge, La.	$341,345
2 Forsum-James Co., Louisiana	342,205
4 Campbell Const. Co., Inc., Shreveport, La.	399,014

Bids: 1-21-53 Item	Unit	Quantity	Unit Prices 1 C	2
Common excavation	cy	22,566	$0.45	$0.50
Drainage excavation	cy	360	1.00	0.75
Borrow excavation	cy	185,018	0.62	0.53
Overhaul on excavation	stay	6,928,000	0.001	0.0035
Slab sodding	sy	1,000	0.75	1.00
Gravel base crse (grade A modified)	cy	26,680	4.15	4.10
Shell base course (alt)	cy	37,055	----	----
Bit mix for hot apl (wearing course)	t	6,476	9.50	9.00
Bituminous tack coat	gal	16,054	0.18	0.20
Bit hot mix, wear course (shell aggregate) (alt)	t	6,476	----	----
Bituminous tack coat (alt)	gal	16,054	----	----
Class A concrete	cy	327,435	55.00	60.00
Deformed reinf stl	lb	26,634	0.13	0.12
RCC pipe (std strength) 18"	lf	130	4.00	3.75
24"	lf	76	5.00	5.00
36"	lf	184	9.00	9.25
Fert broadcast (comm fert) (8-8-8)	lb	11,124	0.06	0.05
Seeding	lb	421	2.00	2.00
Watering	mgal	140	1.00	2.00
Creo plank RR grade crossing	sf	704	3.00	3.50
Remove culverts	ea	1	400.00	500.00
Remove old pavements	sy	4,797.9	1.00	1.00
Conc pipe tee branch 36"x36"x18"	ea	1	60.00	55.00
36"x36"x24"	ea	1	60.00	55.00
Maintain existing detour	ls	1	200.00	1,500



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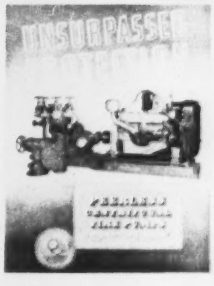

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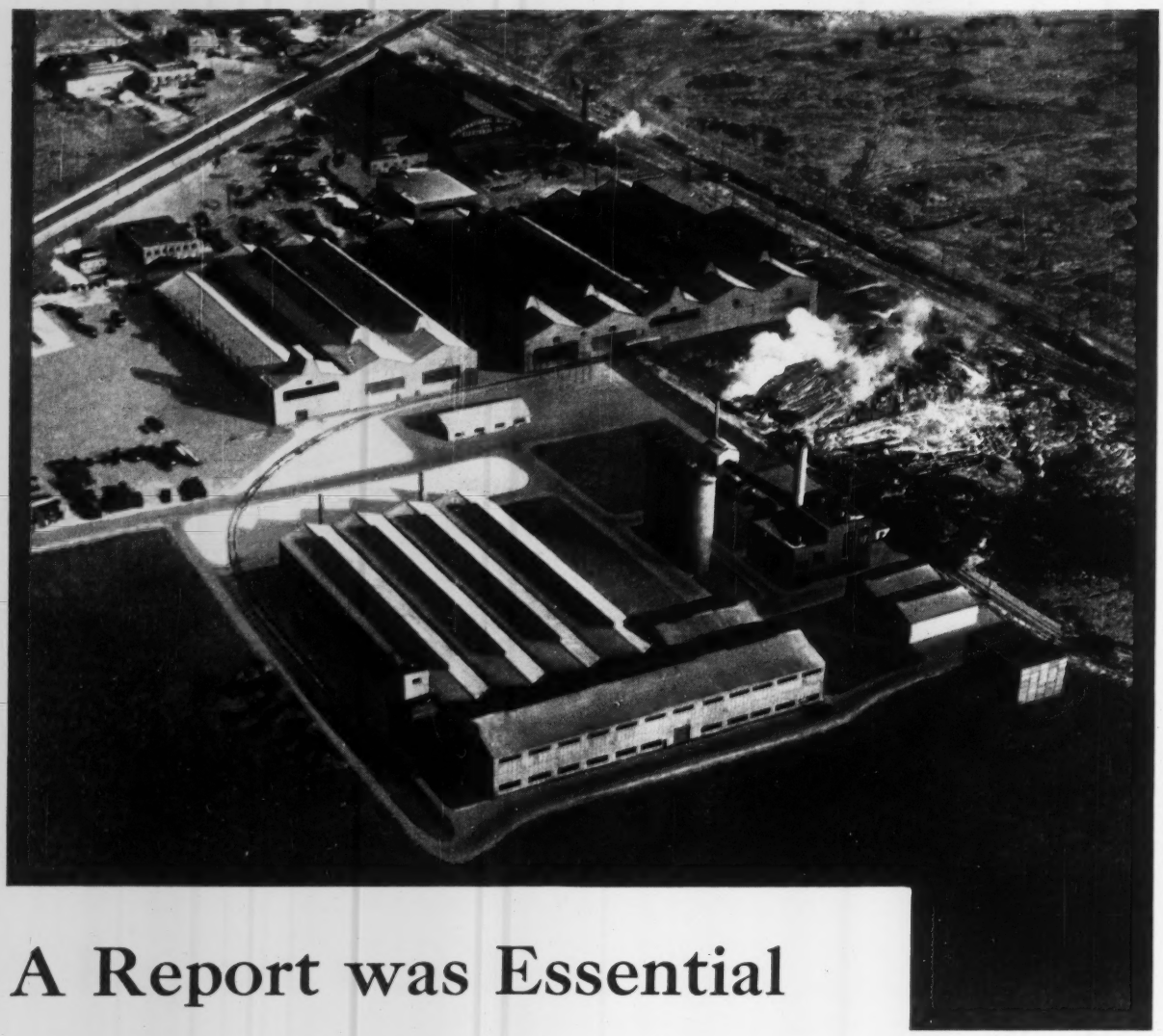

International Graphite & Electrode Division, Speer Carbon Company, Niagara Falls, N. Y.

A Report was Essential

When International Graphite & Electrode Corporation foresaw the need of increased facilities for the manufacture of graphite electrodes, Stone & Webster Engineering Corporation was asked to make a report and recommendations.

The report included a process study, a geographical analysis of product distribution, and a plant site survey which considered both economical distribution and the availability of power and skilled labor.

When, in accordance with the recommendations, International Graphite decided to add extensive new facilities to its Niagara Falls plant, Stone & Webster Engineering Corporation was employed to design and build them.

STONE & WEBSTER ENGINEERING CORPORATION

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Bids—Low Bids—Contracts—Second Section

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
August 6 New York
STREETS AND ROADS
July 30, August 6 New York August 7 Pennsylvania

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Rusciano & Son Corp., 728 E. 212 St., New York, N. Y., LB **$3,884,498,** est. $3,887,000, 0.88 mi. Thy., 1.48 mi. Acc. New York State Thruway-Hudson Sect., Sub. 9A, Tappan Zee Bridge, Tarrytown, App. SH 9206, Broadway-Hastings, Dobbs Ferry-Mt. Pleasant-Tarrytown-No. Tarrytown, Van Wort Ave., Sheldon Ave., H. T. 53-5, S. T. 53-25. R. C. 53-88, Westchester Co. Bids July 9. CD 6/18.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Peckham Road Corp., 50 Harlem Ave., White Plains, N. Y., LB **$334,606,** est. $374,000. 8.83 mi. Cooksburg-Cairo, Pts. 1 and 2, SH 8388. FA. RC 53-64 Albany and Greene Counties. LB **$710,062,** est. $886,000, 5.3 mi. West Taghkanic Ancram, SH 9058, West Taghkanic-Bell Pond, SH 9088; Bell Pond-Claverack, SH 1919; Livingston-Hudson, Pt 2A. FARC 53-75, FASSH 53-10. Columbia Co.;

Gessler Contg. Co., Inc., Burnet Ave. and Clarke St., Syracuse 6, N. Y., LB **$427,434,** est. $500,000, 1.9 mi. Collamer, S. H. 348, Syracuse-Bridgeport, R. 1, SH. 672 FARC. 53-43. Onondaga Co.;

Upstate Paving Co., 941 W. Main St., Watertown, N. Y. LB **$219,533,** est. $241,000. 5 mi. Harrisville-Fine, Pts. 1 and 3, S.H. 8337, FARC. 53-68, Lewis and St. Lawrence Counties;

Bruno J. Caradori Constr. Co., 78 Court St., Lancaster, N. Y., LB **$124,938,** est. $138,000; 2.69 Afton-Bainbridge, S.H. 5261, FARC. 53-77, Chenango Co.;

Hornell Constr. Corp., Hornell, N. Y., LB **$304,058,** est. $322,000. 3.82 mi. Greenwood-Jasper, S.H. 1758, FARC. 53-74, Steuben Co.;

Tomlinson Constr. Co., Ltd., Weedsport, N. Y., LB **$2,351,326,** est. $2,585,000, 2.88 mi. Acc., 1.7 mi. Thy. New York State Thruway-Mohawk Sect., Sub. 1 (Gregg Rd.-Gordon Rd.); Interchange with S.H. 641; Schenectady-Rotterdam Jct. S.H. 641, MT. 53-12, RC 53-83, Schenectady Co.;

Leon Reynolds, Northville, N. Y., LB **$356,179,** est. $363,000, 6.89 mi. Amsterdam City Comn., SH 9043; Northampton, S.H. 158; Old Plant, SH. 249; Johnstown-Broadalbin Pt. SH 543. FARC. 53-76, Fulton and Montgomery Counties;

Potter-DeWitt Corp., Pavilion, N. Y., LB **$377,639,** est. $461,000, 2.63 mi. Montezuma-Port Byron, S.H. 5610, Port Byron-Weedsport, SH. 5609, FARC. 53-67, Cayuga Co.; LB **$994,692,** est. $1,185,000. 4.85 mi. Bath-Hammondsport, Pts. 1 and 2 SH 5517-5495, FARC. 53-66, Steuben Co.;

Holmes & Murphy, Inc., Bank St., Orchard Park, N. Y. LB **$267,826,** est. $286,000, 2.5 mi. Avoca-Wallace-Cohocton, S.H. 5564, FARC. 53-70, Steuben Co.;

I. & O. A. Slutzky, Hunter, N. Y., LB **$1,126,384,** est. $1,128,000. 5.46 mi. Hunter-Jewett Center, S.H. 997, Hunter-Tannersville, S.H. 1242, Tannersville-Haines Falls, S.H. 1630, FARC. 53-72. RC. 53-73, Greene Co.;

Binghamton Constr. Co., Inc., Marine Midland Bldg., Binghamton, N. Y., LB **$213,615,** est. $244,000. 3.98 mi. Afton Coventry, Pt. 1, S.H. 1171, FARC. 53-71, Chenango Co.;

Draicchio & Caradori Constr. Co., 3 Lombardy St., Lancaster, N. Y., LB **$193,933,** est. $198,000, 2.01 mi. Jewettville-Dexter, S.H. 8016, FARC. 53-65. Jefferson Co.;

King Paving Corp., Alplaus Rd., Schenectady, N. Y. LB **$94,533,** est. $111,000. 3.94 mi. Glens Falls-East Lake George, Pt. 1, SH 1666. FARC. 53-69, Warren Co. Bids July 9. CD 6/17.

▲† **Charles Simkin & Sons,** 130 Patterson St., Perth Amboy, N. J., LB, **$3,381,026** central heating plant, distr. system and paving McGuire Air Force Base, No. 36-109-53-427, WRIGHTSTOWN, N. J. U. S. Eng., 121 N. Broad St., Phila., Pa. Bids June 23.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **West Hills Greens Homes,** c/o Schulman & Soloway, archts., 100-15 Queens Blvd., Forest Hills, N. Y. Owner Builds. **$2,500,000.** 224 HOUSES, West Hills Rd. and Jericho Turnpike, HUNTINGTON, N. Y. CD 6/17, under CA.

▲ **College View Apartments,** c/o Samuel Paul, archt., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. **$2,000,000** four 6 story APARTMENTS, on site bounded by Main St., Melbourne Ave., Gravitt Rd. and 149 St., KEW GARDENS, N. Y.

▲ **Harnaby Builders Corp.,** c/o. J. Herbert Burmeister, archt., 89-30, 161 St., Jamaica, N. Y. Owner Builds. **$4,800,000:** 160 HOUSES on 60-acre tract on Park Ave. off Port Washington and Northern Blvd., MANHASSET, N. Y.

▲ **Scarsdale Meadows Homes,** c/o Lee Perry, archt., 419 North Ave., New Rochelle, N. Y. Owner Builds, $5,000,000. 100 HOUSES on 32-acre tract near Weaver St., SCARSDALE, N. Y.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 28 North Carolina July 31 Tennessee
STREETS AND ROADS
July 28 North Carolina July 31 Tennessee

▲ **Ga., Atlanta**—B.A. 8/5—Fulton Co., Court House, 3,800,000 cu. yd. excav., grading site for Chattahoochee River Industrial Site, $1,500,000. CD 6/16.

BIDS ASKED—BUILDINGS

▲ **N. C., Fayetteville**—HOSPITAL—B.A. 8/20—Cumberland Co., Fayetteville, hospital. $2,500,000. Plans deposit $50. George Watts Carr, 111 Corcoran St., Durham, archt. CD 6/25/52

▲† **Ky., Fort Knox**—SHOP—B.A. 8/25—U. S. Eng., 830 W. Broadway, Louisville, structural steel frame, heavy artillery and tank shop, 4 overhead cranes incl. utilities, grading and paving, $1,500,000-$2,000,000. Plans deposit $15. CD 11/12.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Carpenter Constr. Co.,** Bank of Commerce Bldg., Norfolk, Va., CA **$1,514,325.** Deperming facilities, Naval Degaussing Station, NOY 74884, Spec. 35795 NORFOLK, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Bids June 2. CD 6/8, under LB.

▲ **WEST VIRGINIA**—West Virginia Turnpike Comn., 1340 Wilson St., Charleston,

Suber & Co. Inc. and R. G. Foster & Co., Whitmire, S. C., CA, **$1,584,460** Contract 28 E, grading, drainage substructures Mile 85.9 to Mile 87.0 Substructures 86A, 87 88 and 88A, Kanawha Co. Bids June 30. CD 7/7, under LB.

▲ **McIlvaine & Abel Co.,** Ft. Thorn St., Wilmington, Del. LB **$1,396,837,** Div. A and B;

A. H. Guion & Co., Wilkinson Bldg., Charlotte, N. C., LB **$883,501,** Div. C;

W. L. Hailey & Co., 314 42 Ave. N., Nashville, Tenn., LB **$557,513,** Div. D, intercepting sewers;

Fred E. Hicks Constr. Co., 707 Broadway N.E., Knoxville, Tenn., LB **$269,669,** Div. E1, structures for Loves Creek Treatment Plant;

James McHugh & Sons, 6449 S. Park Ave., Chicago 37, Ill., LB **$224,248,** Div. E3, structures, for pumping stations; LB **$1,805,064,** Div. F (structures);

Tennessee Armature & Electric Co., 312 Jackson Ave. S.W., Knoxville, Tenn., LB **$90,880,** Div. G (electrical work);

Fairbanks-Morse & Co., 49 Central St., Cincinnati, O. LB **$63,680,** Div. H (equip.) for Third Creek Treatment Plant. KNOXVILLE, TENN. City, City Hall, Knoxville, Tenn. Bids July 1. CD 4/16.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **B. C. Cobb & Earl H. Wicker,** 2809½ Hilliard Rd., Richmond, Va. Separate Contracts. **$2,000,000.** 370 units, 1 and 2 story asbestos shingle and frame Melrose Garden APARTMENTS, TRIANGLE, VA. E. Tucker Carlton, 1009 E. Main St., Richmond, Va., archt.

▲ **Fluor Corp. Ltd.,** 2500 S. Atlantic Blvd., Los Angeles 22, Calif., CA, Est. **$8,500,000.** Chemical PLANT, CALVERT CITY, KY. B. F. Goodrich Chemical Co., Rose Bldg., Cleveland 14, O. Awarded July 13. CD 5/19.

▲ **V. & M. Constr. Co.,** 1089 Galloway Ave., Memphis, Tenn. Owner Builds. **$2,000,000.** 204 RESIDENCES, MEMPHIS, TENN.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 29 Michigan August 4 Wisconsin
STREETS AND ROADS
July 29 Michigan August 4 Wisconsin

▲ **Mich., Grand Rapids**—B.A. 7/28—City, George E. Bean, mgr., Grand Rapids, Contract No. 3, sewage disposal plant, 12 primary settling tanks, 16x100 ft., installation mechanism, AD Bldg. 48x86 ft., piping, plumbing and electrical work, $5,000,000. Plans deposit $20. Drury, McNamee & Porter, State Savings Bank Bldg., Ann Arbor, engrs. CD 6/20/52.

▲ **Ind., Terre Haute**—B.A. 9/10—City, Bd. P. Wks. & Safety, City Hall, Contract 1, intercepting sewers, connecting sewers and force main; Contract 2, sewage pumping station and appurtenant work; Contract 3, sewage treatment plant. $4,200,000. Plans deposit $50 each. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., engrs. Hardman Engineers, Wabash Theatre Bldg., assoc. engrs. CD 4/4/46.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Townsend & Bottum, Inc.,** 1791 S. State St. (Box 3681, Ann Arbor, Mich., CA., est. **$15,000,000,** addn. to Picway Generating PLANT and 100,000 kw generator, CIRCLEVILLE, O. Columbus & Southern Ohio Electric Co., 215 N. Front St., Columbus, O. CD 3/9.

▲ **Bills Realty Co.,** 134 S. LaSalle St., Chicago 3, Ill., Owner Builds, **$3,500,000.** 250 HOMES along Dundee and Waukegan Rds., NORTHBROOK, ILL. A. J. Del Bianco, 5501 Irving Park Blvd., Chicago, Ill., archt.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 28 Iowa July 30 Missouri
STREETS AND ROADS
July 28 Iowa July 30 Missouri

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Hall Bros.,** 25 and Grand Ave., Kansas City, Mo. cancelled bids to have been opened June 25 due to labor troubles, FACTORY BLDG. "B", KANSAS CITY, MO. Est. **$6,000,000.** Will re-advertise. CD 6/30.

▲ **Foley Bros., Inc.,** Box 666, Pleasantville, N. Y., CA. general constr.;

American Bridge Co., 71 Broadway, New York, N. Y. steel erection, constr. PLANT to refine aluminum into pure aluminum, KALISPELL, MONT. Anaconda Aluminum Co., 25 Broadway, New York, N. Y. Total estimate **$60,000,000.** CD 10/9, under CA.

▲ **F. J. Kirchhof Constr. Co.,** 700 Lawrence St., Denver, Colo., CA, **$1,250,000,** RETAIL STORE in four block area, DENVER, COLO. Sears, Roebuck Co., 1740 Broadway Denver, Colo. Bids June 30, awarded July 6. CD 6/19.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
August 5 California
STREETS AND ROADS
August 5, 6 California

▲ **Calif., San Francisco**—B.A. 8/4—Public Utilities Comn., City Hall, Cherry Valley Dam in Stanislaus National Forest, HHWC NO. 259, rock and earth fill $7,500,000. Plans deposit $10. CD 6/1.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Kloepfer & Gramkow,** 416 S. 6 St., Boise, Idaho, CA, **$1,587,181,** 9 barracks bldg., 2 mess and administration bldgs. and special vehicles bldg., Mountain Home Air Force Base, Inv. 53-49, MOUNTAIN HOME, IDAHO. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Mar. 25. CD 4/6, under LB.

▲† **Campbell Constr. & Equipment Co.,** 1150 Folsom St., San Francisco, Calif., CA, **$2,555,000,** est. $2,564,580 4 wing hangars, Mountain Home Air Force Base, Inv. 53-40, MOUNTAIN HOME, IDAHO. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids June 3. CD 6/11, under LB.

CANADA

BIDS ASKED—BUILDINGS

▲ **Ont., Toronto**—OFFICE—B.A. 7/31—Dpt. P. Wks., Parliament Bldgs., 7 story, bsmt., 107x219 ft., brick office, Queen St., University Ave., Richmond St. and York St. $2,500,000. Plans deposit $50. Marani & Morris, 1250 Bay St., archts. H. H. Angus & Assocs. Ltd., 1221 Bay St., engrs. G. N. Williams, deputy minister and ch. archt. Extended date. CD 7/9.

ALASKA

BIDS ASKED—BUILDINGS

▲ **Alaska, Anchorage**—HIGH SCHOOL—B.A. 8/14—School Dist., Anchorage, rein.-con. addns. to high school, to house gymnasium, auditorium, swimming pool and shop facilities. $2,500,000. Plans deposit $50. Manley & Mayer, 210 Loussac-Sogn Bldg., archts. CD 6/12.

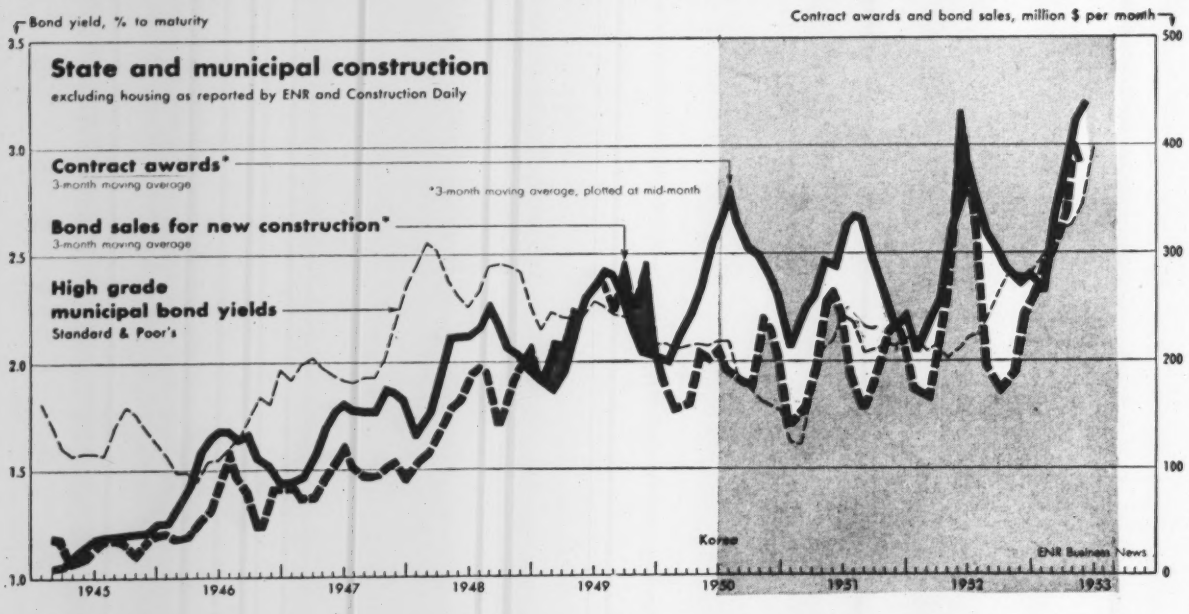
PUERTO RICO

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Fluor Corp., Ltd.,** 2500 Atlantic St., Los Angeles, Calif., CA. **$6,500,000.** design and construct 10,000 bbl. per day OIL REFINERY, SAN JUAN, PUERTO RICO. Caribbean Refining Co., c/o contractor. CD 11/11.

(Proposal Advertisements see pp. 83 to 86)



Municipal money becomes easier to borrow

The Federal Reserve System's new "relaxed money" policy (ENR July 2, p. 74) is helping to make it a little easier to borrow money for state and municipal construction.

For instance, early this month the market eagerly absorbed the biggest tax-exempt issue so far this year. The New Jersey Highway Authority sold $150 million in bonds to underwriters at a cost of a little less than 3%. Purpose of the financing was to pay for the initial construction stages of the Garden State Parkway. The issue was quickly resold to investors, who subscribed for more than they could get.

Of course, the Garden State Parkway issue was bound to be a lot more popular than some proposed public financings that have been called off in the last few months because of the tightness of the municipal market. The Parkway's neighbor, the Jersey Turnpike, has been a phenomenal success. And—unlike proposed financing for the big Mackinac bridge project—the Parkway issue is backed by the full faith and credit of the state.

But it was significant that the market absorbed this king-sized issue while prices of municipal issues already in the hands of investors kept advancing. During the first two weeks of July, the Dow-Jones index of municipal bonds gained sharply, after having declined steadily from mid-April to the end of June.

• **Better tone**—That's taken as proof of a better tone in the municipal market. However, state and municipal construction probably won't get much cheaper to finance than it is at the present time.

Large volumes of new financing are bound to be offered to investors for many months to come. Best proof of that: ENGINEERING NEWS-RECORD's figures on municipal and state contract awards and its backlog of proposed projects.

Just the same, things are looking better for local governments who want to borrow construction money. This

Financing and contracts move in close tandem

The chart on this page shows the relationship between ENGINEERING NEWS-RECORD's monthly reports on contract awards for state and municipal construction, state and municipal bond sales for construction by months, and changes in the cost of borrowing by these local governments. To iron out minor ups and downs, and make long-term trends more obvious, this chart has been worked out on the basis of a three-month moving average.

As you might expect, it shows a close relationship between the volume of contract awards and the volume of bond financing. When volume of contract awards falls off, so does financing.

Since financing usually (but by no means invariably) precedes letting of contracts, peaks in bond sales usually precede peaks in volume of contract awards. There are some interesting exceptions to this, as in 1952, when peaks in financing and contract awards practically coincided. It seems likely that this is a result of the rush of new construction caused by easing of construction curbs. Another possible reason is the growing postwar practice of temporary financing until exact construction costs could be determined. In such cases, contract awards would come before long-term financing.

The interruption in this year's rising trend in bond sales reflects the demoralization of the municipal market in May and June (shown also by the sharp rise in Standard & Poor's Index of Bond Yields). However, this period of rising interest rates seems to have ended (page 79). So you can expect that there will be no interruption in this year's sharp uptrend in contract awards.

is partly due to the Federal Reserve's new policy. It is also partly due to the fact that the long decline in prices of municipals has brought these tax-exempt issues to a level where they are tempting to buyers who previously rarely bought municipals.

• **New customers**—A 3% yield from a municipal bond, exempt from income tax, is the same as a taxable yield of 5.77% for an individual whose taxable income is $12,000 a year. That is comparable to the yields obtainable these days from "good" common stocks, and may interest more middle-income investors who have up till now been putting their spare cash in stocks.

For people in the top income brackets, the tax-exempt yield from municipals has long been preferable to taxable yields from most kinds of common stock. And it is even more attractive today, because these tax-exempt interest rates are now higher. For an individual whose taxable income is $100,000 a year, for instance, a 3% yield from a municipal is the same as a 30% taxable yield from some other investment.

That's why small private investors were reported to be buying last week's $63-million issue by the Georgia State School Building Authority. The longest-term bonds in this issue were offered by underwriters at a price which yields 3.70%, which for individuals in the $12,000-$14,000 income bracket is the same as a taxable yield of about 7.12%. For individuals in the $100,000-a-year bracket, the equivalent taxable yield would be about 37%.

Housing starts decline for second straight month

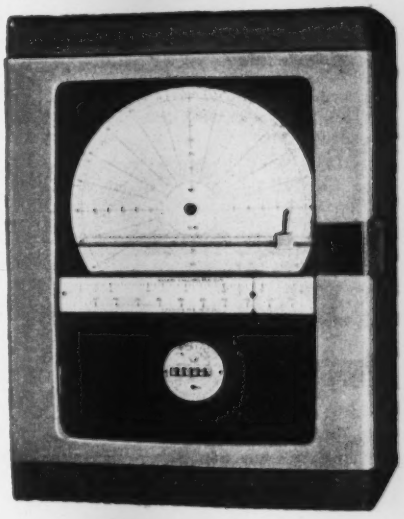
For the second straight month, private housing starts have dropped. Preliminary estimates by the Bureau of Labor Statistics are that there were 103,000 non-farm housing starts in June, a decline of about 4% from May and slightly under June 1952.

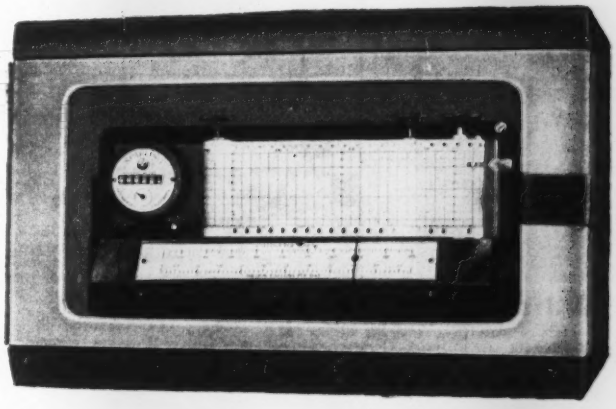
The normal tendency is for June starts to be higher than in May, but this has not happened for the past two years. Builders have been blaming the decline in starts on the shortage of mortgage credit in most sections of the country. Moreover, the National Association of Home Builders points out that the May and June figures reflect last year's planning by builders on mortgage financing. It points out that many builders are cutting down their construction programs for the rest of 1953.

SPARLING MAIN-LINE METERS

From the NEW BULLETIN 313

Select from the new Bulletin 313 the Water Control Equipment your plant *needs* for really efficient operation. Items you think you can't afford may well prove to be easily within your budget on the basis of actual quotations, and may save you money from the day they are installed! The Recorders shown put vital information at your finger tips! Bulletin 313 is yours for the asking.





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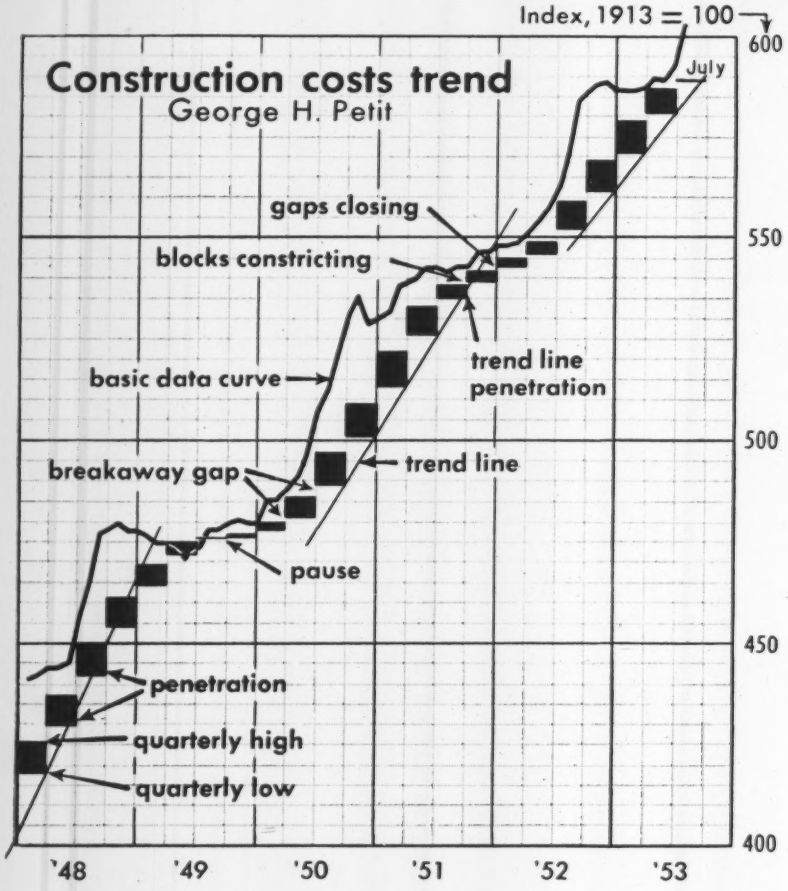


Petit theory: Construction costs won't rise so fast in second half

According to the chart forecast (above) worked out by engineer George Petit, ENR's Construction Cost Index will continue to rise this year, but the rate of increase is gradually slowing up. In the chart, the heavy black line is ENR's monthly Construction Cost Index.

The telltale signs: The gradual shrinkage of the blocks for the first and second quarters of 1953, and the narrowing of the gap between these blocks. Since the third quarter is just getting under way, we have no block for this period, only the line formed by Petit's figure for July. Finally, the trend line is penetrating the second-quarter block and the bottom of the July line.

The chart shows that the same thing happened in last half of 1948 and in the last half of 1951. In 1948, it provided advance notice that ENR's Construction Cost Index was going to level off. In 1951, a definite signal appeared only after the leveling-off of costs had gone on for many months.

• **Warning**—The chart can also give advance notice when the rise in construction costs is going to pick up steam. Here are the signals: a gradual widening of the quarterly blocks, and increasingly wider gaps between them. The trend line, drawn along the lower righthand corners of earlier blocks, begins to miss the new blocks.

How does Petit construct his chart? He works with a 12-month moving average of ENR's Construction Cost Index. That makes the long-term trend clearer. He builds his black blocks by taking, for each quarter, the highest and lowest points of the moving average for the months in that quarter as the top and bottom of his blocks. For a complete explanation of Petit's theory, look back at the 1952 construction costs issue (ENR Sept. 4, '52, p. 98).

FTC drops charges against Milwaukee firms

The Federal Trade Commission has dismissed complaints against three Milwaukee companies in the construction field which charged unlawful interlocking directorates, in violation of the Clayton Antitrust Act.

Under the Clayton Act, one individual cannot be a director in two or more competing corporations, if they are in interstate commerce. Edmund Fitzgerald, president of the Northwestern Mutual Life Insurance Co., had been serving as a director of Bucyrus-Erie Co., Chain Belt Co., and Allis-Chalmers Manufacturing Co. Since Fitzgerald has resigned his directorships, FTC has just ruled that the violation no longer exists.

Enlarging and remodeling will be big business

It looks as if builders will have a steady business for years to come, enlarging houses for families that have grown too big for them. Sunset magazine, a house-and-garden publication for Westerners, made a survey which has turned up some results that make fascinating reading.

About 36% of the people who answered the survey expect to build additions to their homes in the next two years. About 35% plan to remodel, particularly kitchens and bathrooms. Only 25% are figuring on buying or building a house.

Incidentally, about 78% of those who plan to paint inside their houses expect to do the work themselves. Of those who want to have the outside painted, nearly 60% say they are going to do their own painting.

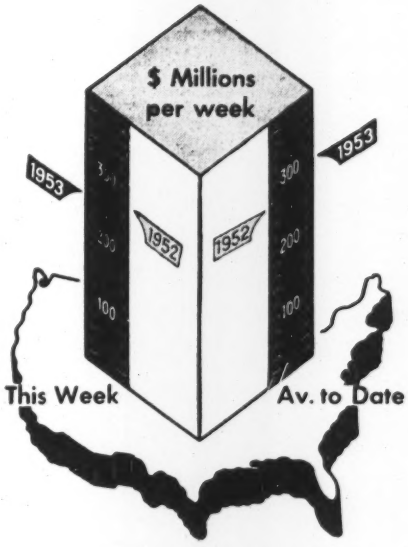
Commerce picks experts to advise on weather

The Commerce Department, which is interested in improving its weather services (ENR July 16, p. 35), has just appointed an eight-man advisory committee on weather services. Its role: to advise the department in determining the government's role in weather forecasting and services.

The committee will recommend methods of coordinating private weather services with those provided by the federal government. Its chair-

Activity This Week

As reported to ENR (in millions of dollars)



Amount of contracts let

	This Week	Cumulative 30 wks 1953	1952	% chge
Federal	$32.4	$949.8	$1,362.7	−30
State and Municipal	80.5	2,916.5	2,514.6	+16
Total pub.	112.9	3,866.3	3,877.3	−0.2
Total priv.	140.6	5,070.9	4,084.3	+24
U. S. Total	**$253.5**	**$8,937.2**	**$7,961.6**	**+12**

Contracts by type of work

Waterworks	$4.8	$139.2	$135.1	+3
Sewerage	10.0	229.2	160.4	+43
Bridges	8.2	419.2	229.1	+83
Highways	36.7	1,044.3	899.1	+16
Earthwork, Waterways	6.7	245.3	314.3	−22
Buildings:				
Public, excl. hsg.	30.7	1,003.2	1,196.2	−16
Housg., pub.	0.7	282.4	473.9	−40
Housg., priv.	57.9	2,255.8	1,785.5	+26
Commercial	22.4	658.1	364.9	+80
Industrial	53.7	1,582.3	1,631.9	−3
Unclassified	22.1	1,078.2	771.2	+40
Total	**$253.5**	**$8,937.2**	**$7,961.6**	**+12**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR indexes		Base Years = 100 1913	1926	1949
Construction cost	Jul	604.10	290.39	126.64
	Jun	593.17	285.14	124.35
Building cost	Jul	435.28	235.19	123.73
	Jun	426.27	230.43	121.17
Volume	Jun	572	233	165

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man is Brig. Gen. Joseph J. George, USAFR, superintendent of meteorology for Eastern Air Lines. Other members are: Robert D. Elliott, vice-president of North American Weather Consultants, Pasadena, Cal.; A. F. Merewether, USAFR, supervisor of meteorology for American Airlines; and Howard T. Orville, Capt., USN (Ret.), technical consultant for Friez Instrument Division of Bendix Aviation Corp.

Business briefs . . .

• **New money** borrowed by corporations, local governments, and the Treasury during the first half totaled $11 billion, the biggest for this period since World War II, according to the National City Bank of New York. That's $1.5 billion more than in the same period last year. Rate of accumulation of savings in savings institutions was about $750 million greater than during the 1952 period.

• **Walter Kidde Nuclear Laboratories, Inc.** (ENR Apr. 16, p. 156) has received a contract from the Atomic Energy Commission to make a design study of a "nuclear power plant for use in an isolated high-cost power area." The study will work out a reactor designed to make power only, and not material for atomic weapons.

• **May bookings** of fabricated structural steel totaled 306,000 tons, the highest in 25 months, says American Institute of Steel Construction.

• **Webb and Knapp, Inc.**, the real estate company controlled by William Zeckendorf, has construction projects in hand totaling over $50 million, according to its annual report. The company is planning to develop properties which will bring in regular income.

• **Union Carbide & Carbon Corp.'s** Electro-Metallurgical Co. Division is asking for government assistance to get into titanium production at a rate of 10,000 tons annually. It wants the standard aid provided by the Defense Materials Procurement Agency to titanium producers: a cash advance to build plant and equipment with the producer having the option to repay in metal instead of cash; fast tax write-off; plus protection if the equipment used becomes obsolete during the life of the contract.

• **Stainless steel ingot production** has increased an average of 16% annually from 1940 through 1951, according to the American Iron & Steel Institute.

OFFICIAL PROPOSALS

APPEAR HERE EACH THURSDAY. PROPOSAL ADVERTISEMENTS ACCEPTED UP TO 10:30 A.M. FRIDAY FOR THE ISSUE DATED THE FOLLOWING THURSDAY.

Bids: August 3, 1953

Grade Crossing Eliminations Through Dunellen and Plainfield, New Jersey

THE CENTRAL RAILROAD COMPANY OF NEW JERSEY
UNDER ORDER OF THE PUBLIC UTILITY COMMISSION, STATE OF NEW JERSEY

Sealed proposals will be received by The Central Railroad Company of New Jersey, at the office of the Chief Engineer, located at Jersey City Terminal, Room No. 44, Foot of Johnston Ave., Jersey City, N. J., until 1:00 P.M., Monday, August 3, 1953, and publicly read at that time, for the:—

Construction of abutments and wingwalls for railroad bridge over Richmond Street, Plainfield, Union County, and a concrete slab extension to an existing culvert over Bound Brook, in the Borough of Middlesex, County of Middlesex, New Jersey. This work also comprehends related items of work including construction of a temporary railroad trestle and an extension of an existing culvert.

Principal quantities involved:—

Richmond St. Bridge
1,041 cu. yds. concrete abutments and walls (gravity)
1,155 cu. yds. concrete paving base
1,240 cu. yds. foundation excavation
1,640 cu. yds. roadway excavation
210 tons bituminous paving top

Extension to Culvert
79 cu. yds. foundation excavation
208 cu. yds. channel excavation
273 cu. yds. concrete Class B
28 cu. yds. concrete Class C
24,360 lbs. reinforcing bars
4,600 sq. ft. metal arch lining

Proposal forms, drawings, specifications, bond and insurance requirements may be obtained at the office of the Chief Engineer of the Railroad Company, at the above address, on or after July 20th, 1953.

This work will be awarded as a general contract and the successful bidder will be required to perform with his own organization not less than 80% of the total value of the contract, except for materials or items of work which require specialized knowledge, craftsmanship or equipment not ordinarily available in the contractor's organization.

The Railroad Company reserves the right to reject any or all proposals.

S. L. Mapes, Chief Engineer

The Central Railroad Company of New Jersey, Jersey City Terminal, Jersey City 2, N. J. July 10, 1953.

Bids: August 5, 1953

Furnishing and Delivering Standard Manhole Frames, Covers and Steps

WASHINGTON SUBURBAN SANITARY COMMISSION
INQUIRY NO. 003376

Sealed proposals for furnishing and delivering one-hundred-seventy-five (175) W.S.S.C. Standard Manhole Frames and Covers "S", twenty-five (25) W.S.S.C. Standard Manhole Frames & Covers "W" and two-thousand (2,000) W.S.S.C. Standard Manhole Steps will be received in the office of the Purchasing Agent, Room 3, of the Washington Suburban Sanitary Commission, 4017 Hamilton Street, Hyattsville, Maryland, until Wednesday, August 5th, 1953 at 10:30 A. M. Eastern Daylight Saving Time at which time and place they will be publicly opened and read.

Specifications and drawings may be obtained from W. R. Douglas, Purchasing Agent of the Commission, 4017 Hamilton Street, Hyattsville, Maryland.

Raymond W. Bellamy, Chairman
L. S. Ray
J. Norman Ager
Commissioners

Attest:
James B. Parkhill
Secretary-Treasurer

Bids: August 11, 1953

Expansion of Toll House

THE PORT OF NEW YORK AUTHORITY
HOLLAND TUNNEL
NEW JERSEY PLAZA
EXPANSION OF TOLL HOUSE
CONTRACT HT-140.001

Sealed proposals for the expansion of the Toll House at the New Jersey Plaza of the Holland Tunnel will be received at the office of the Chief Engineer of the Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M., Tuesday, August 11, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1110, and copies will be furnished upon deposit of $25.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within the forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, July 23, 1953.

CONTRACTORS

Watch this Section for New Projects

Publish your announcement thru the "Proposals Section" of Engineering News-Record and get their bids.

OFFICIAL PROPOSALS

Bids: July 28, 1953

Contract No. 34, 34A, 34B, 34C

The work to be done under Contract 34 consists generally in the construction of 26 reinforced concrete bridge decks on steel superstructure erected by others and includes the erection of pipe railing and furnishing and installing hanger assemblies for utilities. The work is located between mile 20 near Ghent, Raleigh County, and mile 48 near Lively, Fayette County, West Virginia and is in connection with the construction of the West Virginia Turnpike in the State of West Virginia.

Contract 34 consists of the combined quantities of Contracts 34A, 34B, and 34C. The Principal items of work include:

	Approximate Quantity		
	34A	34B	34C
Concrete	880 C.Y.	2,410 C.Y.	2,670 C.Y.
Reinforcing Steel	188,000 Lbs.	557,000 Lbs.	610,000 Lbs.
Erecting Pipe Railing	1,710 Lin.Ft.	4,500 Lin.Ft.	5,340 Lin.Ft

Proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston 5, West Virginia until 9:00 A. M. Eastern Standard Time, and thereafter at the House of Delegates Chamber, State Capitol, Charleston, West Virginia until 10:00 A. M. Eastern Standard Time, on July 28, 1953, at which time and place said proposals will be publicly opened and read.

WEST VIRGINIA TURNPIKE COMMISSION
D. H. Morton,
Chairman

Bids: August 12, 1953

Flocculators and Settling Basins

AKRON, OHIO

Sealed bids or proposals for "Constructing Flocculators and Additional Settling Basins, and Related Work, Contract No. 404" will be received at the office of the Director of Public Service, Room 203, Municipal Building, Akron, Ohio, until twelve o'clock noon, Eastern Standard Time, or 1 P.M. Eastern Daylight Savings Time on August 19, 1953, and at that time and place will be publicly opened and read.

The proposed Flocculators and Additional Settling Basins will be part of the City's Cuyahoga River Water Supply System, located in Portage County, Ohio, about two miles north of the City of Kent.

The Contract involves the construction of reinforced concrete Basins of about 43,000 sq. ft. floor area and about 12 ft. water depth, and the furnishing and installing of the flocculating and sludge removal equipment, piping and accessories; together with the construction of about 240 lin. ft. of 60 inch and 84 inch concrete pipe line, and various minor items of related work.

The Drawings, Specifications and Information and Instructions for Bidders, and the Proposal, Contract and Bond forms are on file and may be seen at the office of the Director of Public Service, Municipal Building, Akron, Ohio. Copies may be obtained at the office of the Bureau of Water and Sewerage, Room 404, Municipal Building, Akron, Ohio, or at the office of Parsons, Brinckerhoff, Hall and Macdonald, Engineers, 51 Broadway, New York, New York, upon deposit of twenty-five dollars, which sum will be refunded upon return of the Drawings and Specifications in good condition.

All proposals must be submitted upon the blank form and in accordance with the instructions furnished by the City.

Each proposal must be accompanied by a certified or cashier's check on a National or State bank in the sum of Fifty Thousand Dollars ($50,000.00).

A bond in the sum of the full amount of the Contract, with satisfactory surety, will be required for the faithful performance of the Contract.

The Director of Public Service reserves the right to reject any or all bids, and to waive any technical defects, as the interest of the City may require.

THE CITY OF AKRON, OHIO
By: M. L. Davis
Director of Public Service
W. R. LaDue
Superintendent & Chief Engineer
Russell M. Bird
Mayor-Manager
Parsons, Brinckerhoff, Hall & Macdonald—
G. Gale Dixon, Associate. Engineers.

OFFICIAL PROPOSALS

Bids: August 7, 1953

General Construction Superstructures & Equipment

CONTRACT 688—GENERAL CONTRACT SUPERSTRUCTURES AND EQUIPMENT
CONTRACT 688E—ELECTRICAL EQUIPMENT
CONTRACT 688H—HEATING AND VENTILATING
CONTRACT 688P—PLUMBING AND GAS FITTING
For THE WESTCHESTER COUNTY, NEW YORK SANITARY SEWER DISTRICT OF NEW ROCHELLE SEWAGE TREATMENT PLANT

Sealed bids will be received in Room 508, County Office Building, White Plains, New York until 10:00 A.M. August 7, 1953 (Eastern Daylight Saving Time) immediately after which the bids will be publicly opened and read in Room 808 of said Building.

Under previous contracts, pipe lines and sub-structures for a primary sewage treatment plant have been nearly completed.

The work under the General Contract 688 will include brick and concrete superstructures for three large and seven small buildings having a cubical contents of 800,000 cubic feet. The equipment to be installed consists of pumps, grit ejector, mechanical sludge collecting system for primary settling and elutriation tanks, digester equipment, sludge filters, incinerators and stack, spherical gas holder, laboratory, metering and chlorinating equipment for a designed population of 81,000 and flow of 31.5 M.G.D.

The work under the Electrical Contract 688 E, the Heating and Ventilating Contract 688 H, and the Plumbing and Gas Fitting Contract 688 P consists of the remaining work necessary to place the sewage treatment plant in operation.

All contract documents may be seen at Room 508, County Office Building. Bidders may procure plans and specifications for any of the four contracts upon a cash deposit of

CONTRACT 688 ..... $50.00
CONTRACTS 688 E, 688 H and 688 P $20.00

which deposit will be refunded to bidders only, provided that all plans and copies of specifications are returned in good condition within thirty days after award of the Contract or rejection of bids.

All bids must be accompanied by a certified check, payable to the County of Westchester, New York, in the following amounts:

For CONTRACT 688 ..... $75,000.00
For CONTRACT 688 E and 688 P ..... 10,000.00 each
For CONTRACT 688 H ... 5,000.00

The County reserves the right to waive any informalities in the bids, or to reject any and all bids. No bidder may withdraw his bid within forty-five days after the actual opening thereof.

DEPARTMENT OF PUBLIC WORKS
COUNTY OF WESTCHESTER
BY: JAMES C. HARDING
COMMISSIONER

Bids: October 12, 1953

Subcontract for Two Regulating Valves

IRAQ GOVERNMENT—DEVELOPMENT BOARD
DOKAN SCHEME

1. Acting on behalf of the Development Board of the Government of Iraq, tenders are invited by Messrs: Binnie, Deacon & Gourley of London for a subcontract for the supply and installation of two regulating valves each 2.286 metres (90") internal diameter for controlling the discharge from two tunnel outlets at a dam to be constructed at Dokan on the Lesser Zab river.
2. It is anticipated that the main contract for the civil engineering work will be awarded towards the end of the year 1953 and the successful tenderer will be required to enter into a contract with the Main Contractors immediately after the main civil engineering contract is signed.
3. The Contract Documents for the main civil engineering contract, which include a specification for the two regulating valves, and Instructions to the Main Contractors for entering into a subcontract for the same, may be inspected at any of the following places, namely:—
   (a) The Offices of the Development Board, Baghdad.
   (b) The Iraqi Embassy, London.
   (c) The Iraqi Embassy, Washington.
   (d) The Royal Iraqi Legation, Paris.
   (e) The Royal Iraqi Legation, Brussels.
   (f) The Royal Iraqi Legation, Rome.
   (g) The Head Office of Messrs: Binnie, Deacon & Gourley, Artillery House, Artillery Row, London, S. W. 1, England.
4. Firms desiring to tender may obtain copies of the Contract Documents for the main civil engineering contract, also copies of all amendments to the specification and drawings for the two regulating valves made subsequent to the preparation of the said Contract Documents & Drawings, from Messrs: Binnie, Deacon & Gourley of London upon payment of Twenty Pounds Sterling.
5. Tenders must be written in English and must be submitted in quadruplicate to Messrs: Binnie, Deacon & Gourley of London and will be received up to noon on the twelfth day of October 1953.
6. Tenders must be accompanied by full particulars of the tenderer's facilities for undertaking the work and experience of executing work of a similar character and magnitude.

BINNIE, DEACON & GOURLEY,
Consulting Engineers,
Artillery House,
Artillery Row,
Westminster,
London, S.W.1.

OFFICIAL PROPOSALS

Bids: July 30, 1953

Soil Exploration & Foundation Investigations

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Daylight Saving Time, on July 30, 1953 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE NEW YORK STATE THRUWAY, NEW ENGLAND SECTION, NEW ROCHELLE TO CONNECTICUT STATE LINE, WESTCHESTER COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-56

Maps, plans and specifications may be examined and obtained at the following offices:
(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.
(b) J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.
(c) Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $34,700.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposals must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1,735.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. Tallamy
SUPERINTENDENT OF PUBLIC WORKS

U. S. Government

GOV. OF DIST. OF COL., DIR. OF HIGHWAYS, D. C., July 15, 1953. SEALED PROPOSALS will be recd. in Rm. 404, 499 Pa. Ave., N. W., Wash. 1, D. C., until 2 PM, DST, August 19, 1953, and then publicly opened and read for construct. an underpass and a trunk sewer on E. Capitol St. under 19 tracks of the Penna. and B & O Railroads, with an encased steel beam superstructure on reinf. conc. abutments and pier. (Fed. Aid Proj. U-UG 40-(4). Proj. length is 524 ft. Approx. quantities of major items in the underpass are: 42,000 cu. yds. excavation, 9,800 cu. yds. conc., 520,000 lbs. reinf. steel, and 2,220,000 lbs. structural steel. Approx. quantities in the 15' x 10'-6" trunk sewer: 8,200 cu. yds. excavation, 1,600 cu. yds. conc. and 315,000 lbs. reinf. steel. Proposal forms, plans and specns. obtainable, upon deposit of Cert. Check, payable to Collector of Taxes, D. C., for $50.00 per set, from Supervisor, Contr. Sec., Procurement Office, D. C., Rm. 406—499 Pa. Ave., N. W. (Tel. NA 8-6000, Ext. 2378).

OFFICIAL PROPOSALS

Bids: August 6, 1953

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time which is nine-thirty o'clock A.M., eastern standard time, on the 6th day of August 1953, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. Nickerson, District Engineer, 353 Broadway, Albany, New York				
Saratoga	D.A. 53-1P	West Milton-Atomic Energy Commission Access Road, Project AA-1 Cont. 2	0.60	Bit. Mac. Type 1	$800 Plans $10	$15,000
Saratoga	FAC 53-15	City of Mechanicville: Central Avenue, Project Project U-UG-319(3) Cont. 1	0.50	9" Cem. Conc. Pavt. 46' Wide	$18,000 Plans $10	322,000
		DISTRICT No. 2				
		L. Ketchum, District Engineer, 109 No. Genesee Street, Utica, New York				
Hamilton	FASSH 53-11	Speculator-Indian Lake, Pt. 1, Project S-503(3)	10.66	D. S. T. Graded Gravel Comp. I-Beam Br. 55'	$90,000 Plans $50	1,720,000
Oneida	RC 53-99	Rome-Holland Patent Pt. 2, S. H. 8345 Whitesboro-Trenton, S. H. 5325	.....	Removal of 155 trees	$700 Plans $10	13,000
		DISTRICT No. 3				
		William Robinson, District Engineer, 301 E. Water Street, Syracuse, New York				
Onondaga & Madison	FARC 53-94	Lafayette-Onativia Road, S. H. 9086; Lafayette-Pompey Pts. 1 & 2, S. H. 8332; Pompey-Cazenovia Pts. 1 & 2, S. H. 8391; Syracuse Turnpike Pt. 1, S. H. 9023, Project F-470(16)	13.91	Asp. Conc. Ty. 1A, Opt.	$100,000 Plans $25	1,780,000
Onondaga	PSC 15302	Elimination of N. Y. C. R. R. with Lemoyne Avenue and Lemoyne Avenue, S. H. 49-12	0.47	9" Cem. Conc. Pavt. 52' Wide = 0.45 Mi. Asp. Conc. Ty. 1A, Opt. = 0.02 Mi.; Built-Up Beam (Stringer Type) 77'	$40,000 Plans $15	743,000
		DISTRICT No. 5				
		C. R. Waters, District Engineer, 65 Court Street, Buffalo, New York				
Cattaraugus	RC 53-104	Various Highways in Cattaraugus County	.....	Removal of 157 Trees	$600 Plans $10	11,000
Chautauqua	FARC 53-102	Penn. State Line-Dunkirk, Pt. 2, S. H.8334; Dunkirk-Silver Creek, S. H. 8304, Project F-458(9)	1.13	Asp. Conc. Ty. 1A, Opt.= 0.91 Mi. Misc. Work = 0.22 Mi. Twin R. C. Slab Br. 40.6' R. C. Arch 22'	$27,000 Plans $15	$481,000
Erie	FARC 53-89	Hamburg-Springville Pt. 1, S. H. 527, Project 2-369(1)	3.81	Asp. Conc. Ty. 1A, Opt.= 3.79 Mi. Misc. Work = 0.02 Mi.	$25,000 Plans $15	450,000
		DISTRICT No. 6				
		James H. Thomas, District Engineer, 30 West Main Street, Hornell, New York				
Steuben & Yates	RC 53-96	Br. No. 3 and Br. No. 4, S. H. 8399; Br. No. 3, S. H. 8353; Br. No. 1, S. H. 8146 and Br. No. 2, S. H. 5204	.....	Painting 5 Bridges	$1,300 Plans $10	24,000
		DISTRICT No. 7				
		R. W. Sweet, District Engineer, 444 Van Duzee St., Watertown, New York				
Clinton	FARC 53-101	Ausable Forks-Clintonville, S. H. 476, Proj. F-876(3)	1.88	Asp. Conc. Ty. 1A, Opt.	$13,000 Plans $10	228,000
		DISTRICT No. 8				
		J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, New York				
Ulster	CT 53-10 ST 53-26 RC 53-103	New York State Thruway-Catskill Section-Sub. 4 New Paltz-Whiteport; Route 299 Interchange; Highland-New Paltz, S. H. 1536; Kingston-High Falls, S. H. 229; Eight Town or County Roads	5.39 Acc. 10.21 Thy.	9" Cem. Conc. Pavt. 2 @ 37' Var. Wide = 13.03 Mi.; Asp. Conc. Ty. 1A, Opt.= 0.31 Mi.; T. C. Graded Gravel, D. S. T.= 2.26 Mi.; 5 H. G. S. Comp. I-Beams 276.3'; 197.7', 198', 304' & 199.5' 1 H. G. S. Welded Girder and Comp. I-Beam 75.9', 2 Br.Plate Girder Comp. I-Beam Cantilever, 540' & 356'	$600,000 Plans $100	11,597,000
Westchester & Rockland	HT 53-6	New York State Thwy.-Hudson Sect.- Sub. 9B, Tappan Zee Bridge	1.34	R. C. Rig. Frame Bents on Exist. Fdtn.& Misc. Work	$136,000 Plans $15	2,473,000
Col., Orange Putnam Ulster & Sullivan	RC 53-97	Br. No. 2, S. H. 1563; Br. No. 2, S. H 8359; Br. No. 4, S. H. 95; Br. No. 2, S. H. 8424; Br. No. 1, S. H. 5203; Br. No. B-1, S. H. 351; Br. No. 3, S. H. 603; Br. No. 1, S. H. 1464 & Br. No. 2, S. H. 8441	.....	Painting 9 Bridges	$1,200 Plans $10	22,000
		DISTRICT No. 9				
		F. W. Donovan, District Engineer, 71 Frederick St., Binghamton, New York				
Broome	FARC 53-90	Lisle-Center Lisle, S. H. 445,LisleVillage: Main Street, S. H. 1608, Project F-608(6)	3.32	Asp. Conc. Ty. 1A, Opt.	$18,000 Plans $10	315,000
Chenango	FARC 53-98	Bainbridge-Unadilla Pts. 1 & 2, S. H. 5013-5216, Robbins Crossing = S. H. 5454, Project F-420(12)	3.34	Asp. Conc. Ty. 1A, Opt.	$13,000 Plans $10	230,000
Chenango & Broome	RC 53-100	Brs. No. 1, 2 & 3 Whitney Point-Greene Pt. 1A, S. H. 8489; Brs. No. 2, 4 and 6 Harpursville Station-Coventry Pt. 2, S. H. 1901	.....	Repair & Paint 6 Bridges	$3,000 Plans $10	54,000
		DISTRICT No. 10				
		M. E. Gould, District Engineer, Montauk Highway, Babylon, L. I., New York				
Nassau	FASG 53-6	Peninsula Boulevard, Project SG-319(2)	0.66 RR 0.21 HY.	9" Cem. Conc. Pavt. 2 @ 24' Wide = 0.20 Mi. Misc. Work = 0.01 Mi. RR Track Work = 0.66 Mi. RR Sep. Plate Girder 92.7' Br. Twin Box 21.2'	50,000 Plans $15	853,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

Official Proposals Columns
of ENGINEERING NEWS-RECORD

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Official Proposal Division
ENGINEERING NEWS-RECORD
New York 36, N. Y.

OFFICIAL PROPOSALS

Bids: August 19, 1953

Contract C-56
Contract C-57
Contract C-58
Contract C-59
Contract C-56&57
Contract C-57&58
Contract C-58&59
Contract C-56, 57&58
Contract C-57, 58&59
Contract C-56, 57, 58&59

NOTICE TO BIDDERS

Sealed proposals will be received by the Ohio Turnpike Commission for the performance of each of the Contracts enumerated above.

The work covered by Contract C-56 consists generally of the construction of grading, drainage, structures, and paving of approximately 4.4 miles in Construction Section 56 of Ohio Turnpike Project No. 1, beginning at a point about 2,000 feet East of Shilling-Ely Road at Turnpike Centerline Station 49+10, and extending eastwardly to a point about 1,100 feet East of Spies-Handy Corners Road at Turnpike Centerline Station 281+57.53, all in Fulton County, and the construction of engineer's office buildings and facilities on or near the site of the work.

The work covered by Contract C-57 consists generally of the construction of grading, drainage, structures, and paving of approximately 3.8 miles in Construction Section 57 of Ohio Turnpike Project No. 1, beginning at a point about 800 feet East of Alvordton Road at Turnpike Centerline Station 1031+70 in Williams County, and extending eastwardly to a point about 2,000 feet east of Shilling-Ely Road at Turnpike Centerline Station 49+10 in Fulton County, and the construction of engineer's office buildings and facilities on or near the site of the work.

The work covered by Contract C-58 consists generally of the construction of grading, drainage, structures, and paving of approximately 2.8 miles in Construction Section 58 of Ohio Turnpike Project No. 1, beginning at a point about 2,000 feet east of State Route No. 569 at Turnpike Centerline Station 883+15, and extending eastwardly to a point about 800 feet east of Alvordton Road at Turnpike Centerline Station 1031±70, all in Williams County, and the construction of engineer's office buildings and facilities on or near the site of the work.

The work covered by Contract C-59 consists generally of the construction of grading, drainage, structures, and paving of approximately 3.7 miles in Construction Section 59 of Ohio Turnpike Project No. 1, beginning at a point about 1,300 feet west of State Route No. 15 at Turnpike Centerline Station 689+00, and extending eastwardly to a point about 2,000 feet east of State Route No. 569, at Turnpike Centerline Station 883+15, all in Williams County, and the construction of engineer's office building and facilities on or near the site of the work.

The work covered by Contracts C-56&57; C-57&58; C-58&59; C-56, 57&58; C-57, 58&59; and C-56, 57, 58&59, which cover various combinations of Construction Sections 56, 57, 58 and 59, is the construction as above generally described for the individual Construction Sections in each combination contract.

In Construction Section 56, the principal structures to be built are one reinforced concrete culvert, and six steel beam bridges of from three to five spans each supported on reinforced concrete abutments and bents. The abutments of all of the bridges are to be on steel piles. The piers of four bridges are to be on spread footings. The piers of one bridge are to be on steel piles and the piers of the other bridge on cast-in-place reinforced concrete piles.

In Construction Section 57, the principal structures to be built are four reinforced concrete culverts, and six steel beam bridges of from three to five spans each supported on reinforced concrete abutments and bents. The abutments of all of the bridges are to be on steel piles. The piers of five bridges are to be on spread footings and the piers of Structure 57-2 over Shilling-Ely Road are to be on steel piles.

In Construction Section 58, the principal structures to be built are two reinforced concrete culverts, and three steel beam bridges of four spans each supported on reinforced concrete abutments and bents. The abutments of all of the bridges are to be on steel piles and the piers are to be on spread footings.

In Construction Section 59, the principal structures to be built are one reinforced concrete culvert, and seven steel beam bridges of from three to five spans each supported on reinforced concrete abutments and bents. The abutments of all of the bridges are to be on steel piles. The piers of five bridges are to be on spread footings. The piers of the State Route 569 and State Route 15 Bridges over the Turnpike are to be on steel piles.

Approximate quantities of the major items of construction for Contract C-56 are as follows:

Roadway Excavation	92,000 cubic yards
Borrow	879,000 cubic yards
Structural Concrete	4,100 cubic yards
Reinforcing Steel	535,600 pounds
Fabricated Structural Steel (excluding furnishing and fabrication)	1,695,600 pounds
10" Reinforced Concrete Pavement	122,600 square yards

Approximate quantities of the major items of construction for Contract C-57 are as follows:

Roadway Excavation	230,400 cubic yards
Borrow	988,500 cubic yards
Structural Concrete	4,700 cubic yards
Reinforcing Steel	575,600 pounds
Fabricated Structural Steel (excluding furnishing and fabrication)	714,900 pounds
10" Reinforced Concrete Pavement	105,500 square yards

Approximate quantities of the major items of construction for Contract C-58 are as follows:

Roadway Excavation	66,000 cubic yards
Borrow	485,000 cubic yards
Structural Concrete	2,400 cubic yards
Reinforcing Steel	320,000 pounds
Fabricated Structural Steel (excluding furnishing and fabrication)	453,000 pounds
10" Reinforced Concrete Pavement	78,900 square yards

Approximate quantities of the major items of construction for Contract C-59 are as follows:

Roadway Excavation	390,000 cubic yards
Borrow	820,000 cubic yards
Swamp Excavation	70,000 cubic yards
Granular Backfill	160,000 cubic yards
Structural Concrete	5,600 cubic yards
Reinforcing Steel	725,000 pounds
Fabricated Structural Steel (excluding furnishing and fabrication)	1,684,000 pounds
10" Reinforced Concrete Pavement	126,000 square yards

For each Contract, fabricated structural steel and expansion and/or contraction joints will be furnished by the Commission.

Insofar as this notice pertains to the work to be done on Construction Sections 56 and 57, it is a readvertisement. Proposal forms, Plans, Cross Section, and Special Provisions for Construction Sections 56 and 57 as formerly advertised are now obsolete. Any person who obtained any of these documents pursuant to the former advertisement and esires to bid for said Construction Sections must obtain a new set of Contract Documents for the letting advertised in this notice, except that he need not obtain a new set of General Specifications or of those Supplemental Specifications already in his possession and applicable to any or all of these contracts, as set forth in the Special Provisions comprising a part of the new Contract Documents.

Copies of the Plans and General Specifications for said Contracts are immediately available for public inspection or purchase at the office of the Chief Engineer, Ohio Turnpike Commission, 139 East Gay Street, Columbus 15, Ohio. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable:

General Specifications for Ohio Turnpike Project No. 1	$ 5.00
Plans (also soil profiles and boring logs), per set, per construction section	15.00
Cross Sections, per set, per construction section	25.00

Forms or copies of all remaining Contract Documents, including Proposals for each of the Contracts set forth above, the Affidavit which must accompany any such Proposal, this Notice to Bidders, the Special Provisions applying to said Contracts, the Contract to be entered into with the (or each) successful Bidder, and the Contract Bond to be furnished with such Contract, will be furnished upon request and without charge to any interested person at the aforesaid Chief Engineer's office on and after this date.

All Proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Each Proposal must be accomapnied by a certified check, or checks, on a solvent bank, or banks, payable to the order of the Ohio Turnpike Commission in an amount not less than 5 percent of the amount bid, or, if the Bidder shall tender bids for more than one contract, said amount shall be not less than 5 percent of the highest total amount which could be the basis of an award or awards to him of any one or more of the above-enumerated contracts. The Commission may at any time cash any such check. Each such check, or the proceeds thereof, will be held by the Commission as a guaranty that, if any Proposal guaranteed thereby is accepted, a Contract will be entered into and the performance of the Proposal secured. Each such check, or the proceeds thereof, will be returned or forfeited as provided in paragraphs G-3.03 and G-3.06 of the aforesaid General Specifications provided that, if there be a forfeiture, it shall be of an amount equal to 5 percent of the total amount bid in the Proposal with respect to which the forfeiture occurs, and any excess will be returned to the Bidder.

All bids must be received at or before 10:00 A. M., Eastern Standard Time, August 19, 1953, in the offices of the hOio Turnpike Commission, 139 East Gay Street, Columbus 15, Ohio. At said hour, the bid box will be removed to the Neil House Hotel, 41 South High Street, Columbus, Ohio, where all Proposals will be publicly opened and read.

The award of any of the above-enumerated Contracts, if any award be made, will be to the Bidder or Bidders whose Proposal or combination of Proposals is lowest and best for the performance of the work, taken as a whole, and complies with all the prescribed requirements. The Commission reserves the right to reject any or all Proposals and to waive technicalities.

OHIO TURNPIKE COMMISSION

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of

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Official Proposal Division

ENGINEERING NEWS RECORD

Address: New York 18, N. Y.

AN AUCTION
HEAVY EQUIPMENT

Monday, August 10th at 11 A.M. (EST) 14 miles NW of Clarksburg, West Virginia, or, about 100 miles South of Pittsburgh, Pa. Each-Piece-Positively-Sells-To-The-Highest-Bidder-Without-Minimum-Limit-Or-Reservation. Sale due to heart attack of owner. Most of this equipment is late model, it has not had hard usage, is one owner equipment, not been out on rental, and has been used on one-shift only, is in excellent condition thruout, ready for the job.

Two Lima 1201 Hi-Lift Shovels, S/N 4478 & 5653, the one machine has actually been operated one season, the other two seasons only. Both have Cummins "E" type Diesel power, 44" swamp pads, 18' 11" crawlers, 34' boom, 27' dipper, 3 c.y. manganese front dipper, air controls, 1500 Watt EH Kohler lite plant, standard gantry. Both excellent condition. **Lima 802 shovel** 2 yard, S/N 3080 Cat D17000, had a complete overhaul and not used since, engine overhauled 18 months ago. Very good condition thruout. **Lorain Model 87 shovel,** S/N 9814, Waukesha-Hesselman diesel, hi lift front, 1¾ yd, machine ready for work. **Wayne Crane, Clam-shovel-drag,** on rubber, machine has had very little use, excellent shape. **Lorain 75B shovel,** S/N 4971, Cat D8800, good operating shape. The Lorain 820 boom and dipper on this machine had 1 season use, will fit the current 820, will be sold separately. **2 yd PMCO dipper bucket, 1¾ yd Page drag bucket, 1¾ yd Amsco dipper bucket, 1¾ yd Esco almost new dipper bucket, 1½ yd Amsco dipper bucket—excellent. Owens ⅝ yd clamshell.**

Cat D-8, S/N 21U-6314, w/8A angle dozer and Cat 7-25 DDPCU. Runs, 5392 hours. **Cat D-8,** S/N 1H-9640, Cat angle dozer & LeT DDPCU. **Cat D-7,** S/N 6T-998, dozer & LeT DDPCU, 9620 hours. **IHC TD-18 angle dozer** & DDPCU, fair to poor. **Cat D-2** w/angle dozer, Hyster D-2 winch, S/N 5J-9304, in excellent shape.

2 Euclid rear dumps, S/N 27FD6011 & 27FD-6012, both Cummins 150 hp, good rubber, good condition thruout. **2 Euclid rear dumps,** S/N 28FD-5657 & 28FD6829, both 150 hp Cummins, good rubber, good condition throughout. **Three sets steel Euclid sideboards.** Warco VD104 motor grader, scarifier, 1HC Diesel. **Buffalo-Springfield 10 ton roller,** hydraulic, used very little. **LeT H-3 Ripper,** exc. Goose neck extension & blocks for 802 Lima; 10' boom section & 2 sets counterweights for 802 Lima; Counterweight & fuel tank for 80D Northwest. **300 amp Hobart welder; Hardsocg vertical 4" drill & auger. Permanco horizontal 6" drill & auger; 3 Hardsocg coal drills. McCartney 6" drill hydraulic,** auger, on a truck; '45 Chev 4x4 truck w/2 compt 750 gal tank, pto pump; 7 **White WB dump trucks** w/7-11 steel Penn bodies, 7" telescoping hoist, 2 are '48, 5 are '47, all in very good condition, good rubber. **White WB '47 10 wheel dump truck. 6 White WA dump trucks,** '45 models, equipped same as WB's, all good shape. Other trucks. Many other items.

This is a complete sale of the owner's equipment, 2 tipples will be sold same day, sale due to heart attack of owner. WIRE-WRITE-CALL Auctioneers for complete sale bill. TERMS:—Complete payment sale day, cashier's check or Bank Draft only will be accepted. EACH PIECE POSITIVELY SELLS TO THE HIGHEST BIDDER WITHOUT ANY MINIMUM LIMIT OR RESERVATION!!!

ELWOOD M. JENKS, *Owner*

FORKE BROTHERS
the Auctioneers
321 Sharp Bldg. **Lincoln, Nebraska** Phone 2-7045
— EQUIPMENT AUCTION LEADERSHIP SINCE 1921 —

OFFICIAL PROPOSALS

Bids: August 12, 1953

Steel Truss Bridge

Kingston, New York

Sealed proposals will be received by the Board of Supervisors of the County of Ulster, New York at the office of Robert A. Snyder, Clerk, Court House, Kingston, New York, until 3:00 P.M. on the 12th day of August, 1953, at which time and place they will be publicly opened and read, for the furnishing of all labor and materials necessary in the construction of a steel truss bridge, complete with concrete deck and backwalls and two coats of approved bridge paint, and known as the Sundown Bridge, designated as County Bridge No. 48, spanning the Rondout Creek in the Town of Denning, Ulster County, New York.

Plans and specifications may be seen in the office of the Clerk of the Board of Supervisors, Court House, Kingston, New York and copies of the same may be secured upon application to Roland H. Green, Acting County Superintendent of Highways, 74 John Street, Kingston, New York, upon the deposit of fifteen dollars ($15.00), which sum will be refunded if the plans and specifications are returned in good condition by bidders within twenty (20) days of bids having been received and acted upon by the Board of Supervisors, and ten dollars ($10.00) of the deposit will be so returned to non-bidders.

A certified check upon a National Bank, State Bank, or Trust Company in the sum of 10% of the amount of the bid, made payable to the Treasurer of Ulster County, New York, must accompany the bid as a guarantee that the contract will be entered into if awarded.

A labor and material bond will also be required.

A fairthful performance bond in the sum of one hundred per cent (100%) of the contract price will be required.

The Board of Supervisors of Ulster County, New York, reserves the right to reject any or all bids as it may deem to be to the best interests of the County of Ulster, New York.

ROLAND H. GREEN
ACTING COUNTY SUPERINTENDENT
OF HIGHWAYS.

Dated: July 13, 1953

OFFICIAL PROPOSALS

Bids: August 3, 1953

THE PORT OF NEW YORK AUTHORITY

Maintenance paving and Drainage La Guardia Airport

CONTRACT O and M—192

Sealed proposals for maintenance paving and drainage at La Guardia Airport, Queens, New York, will be received at the office of the Director of Purchase of The Port of New York Authority, Room 900, 111 Eighth Avenue, New York, New York, until 11:00 A. M. (E.D.S.T.), on Monday, August 3, 1953, at which time and place said proposals will be publicly opened and read.

Contract documents may be seen at the office of the Director of Purchase and Administrative Services, Room 900, and copies will be furnished upon deposit of $10.00 per set. Deposit must be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. The duplicate copy of the receipt is then to be delivered to the Director of Purchase and Administrative Services, who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than thirty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within thirty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

Read the Official Proposal Columns of ENGINEERING NEWS-RECORD This Week and Every Week

OFFICIAL PROPOSALS

Bids: August 3, 1953

Constr. of Improvements for Water Works System

Sealed proposals for the construction of Improvements for Water Works System for the Village of Watkins Glen will be received by the Village Board of the Village of Watkins Glen, New York at the Village Hall until 8 P.M. o'clock, E.D.T. on the 3rd day of August, 1953.

Information for bidders can be obtained at the office of Superintendent of Public Works at the Village Hall, Watkins Glen, New York, or the office of William S. Lozier Company, Engineers, 10 Gibbs Street, Rochester, New York. Copies of plans may be obtained upon payment of ten dollars ($10.00) for each set, which will not be refunded.

The work consists of the construction of:

SECTION "A"—Construction of new intake well and installation of new pumps and piping connection.

SECTION "B"—Connection of 8" west side support main, approximately 3100' long.

SECTION "C"—Construction of 8" low pressure supply main, approximately 2500' long.

SECTION "D"—Construction of 8" east side support main, approximately 4600' long.

SECTION "E"—Construction of 8" south side support main, approximately 3500' long.

SECTION "G"—Construction of 6" Fourth Street support main, approximately 2500' long.

SECTION "H" — Part I — Approximately 6800' of 6" and 8" water mains for southwest part of village.

Part II—Tank foundation and vaults.

Part III—150,000 gallon steel storage tank.

SECTION "J"—High pressure system pump station.

George F. Scaptura
VILLAGE CLERK

July 16, 1953

Bids: August 25, 1953

Hoboken-Port Authority Piers

THE PORT OF NEW YORK AUTHORITY
PIER C

CONTRACT HP-110.012

Sealed proposals for the construction of Pier C at Hoboken-Port Authority Piers will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M., on Tuesday, August 25, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1110, and copies will be furnished upon deposit of $50.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within the forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, July 23, 1953.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3997) will be received at Superior, Nebraska, until August 6, 1953, for furnishing labor and materials for earth lining and relocation of reaches of Courtland Canal, Superior-Courtland Unit, Bostwick Division, Nebraska, Missouri River Basin Project. Location: Near Guide Rock and Bostwick, Nebraska. Principal items are: 40,000 sq. yds. re-working earth canal invert; 280,000 cu. yds. excavation; 130,000 cu. yds. placing earth lining; 73,000 cu. yds. compacting earth lining; and other work. Completion time 180 days. For particulars, address Bureau of Reclamation, Superior, Nebraska; or Building 53, Denver Federal Center, Denver, Colorado.

FRED G. AANDAHL, Assistant Secretary for Water and Power Development
Department of the Interior

ENGINEER

Drafting Checker — Mechanical or Civil Engineer with a minimum of five years experience in design and detailing preferably in the chemical industry. Position entails checking of structural and process designs.

Cost Estimating Engineer—Chemical Engineer with 5/10 years experience in Chemical Process equipment design including some cost estimating experience. Responsible position involving cost estimating and design of new chemical processes.

Apply Director of Personnel

J. T. BAKER CHEMICAL COMPANY
PHILLIPSBURG, N. J.

WANTED—An experienced
CONSTRUCTION SUPERINTENDENT
To supervise erection of a 50,000 KW, 1450 psi addition to a power station and also a construction accountant for this work. Estimated time for construction 12 to 18 months. Construction to start January, 1954.

P-8139, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

WANTED—EXPERIENCED miners for sewer tunnel, in clay type earth formation, at Charleston, West Virginia. Contact Nance & Vivadelli, 2420 Wilson Boulevard, Arlington Virginia. Jackson 7-7749.

SALES ENGINEER—Civil Engineer needed to promote the use and sale of welded wire fabric concrete reinforcement and to provide local salesmen with engineering counsel on product application. Highway and other construction experience desirable. Age 30 to 40. Headquarters in New York. Considerable traveling. Starting salary approximately $600. per month. Write giving age, education, experience, personal qualifications, etc. P-8546, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT wanted for work in N. J. with experience in highway construction. Must be capable of taking complete charge of work which includes all types of excavation, drainage & paving. Must have engineering knowledge & be cost conscious. Permanent position for the right man. Give resume. P-8550, Engineering News-Record.

PROJECT ENGINEER — Thoroughly experienced Contractors Engineer—preferably on Public work. It's located 40 miles out of Washington. Salary to start $10,000.00 per year. Write full details. P-8500, Engineering News-Record.

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(Continued on the following page)

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P-8462, Engineering News-Record
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P-8515, Engineering News-Record
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(Continued from preceding page)

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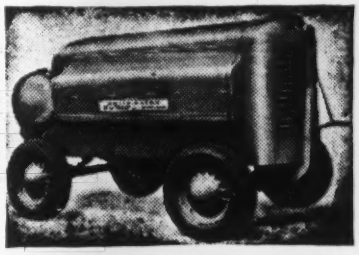

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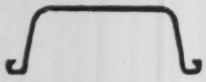

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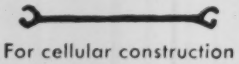

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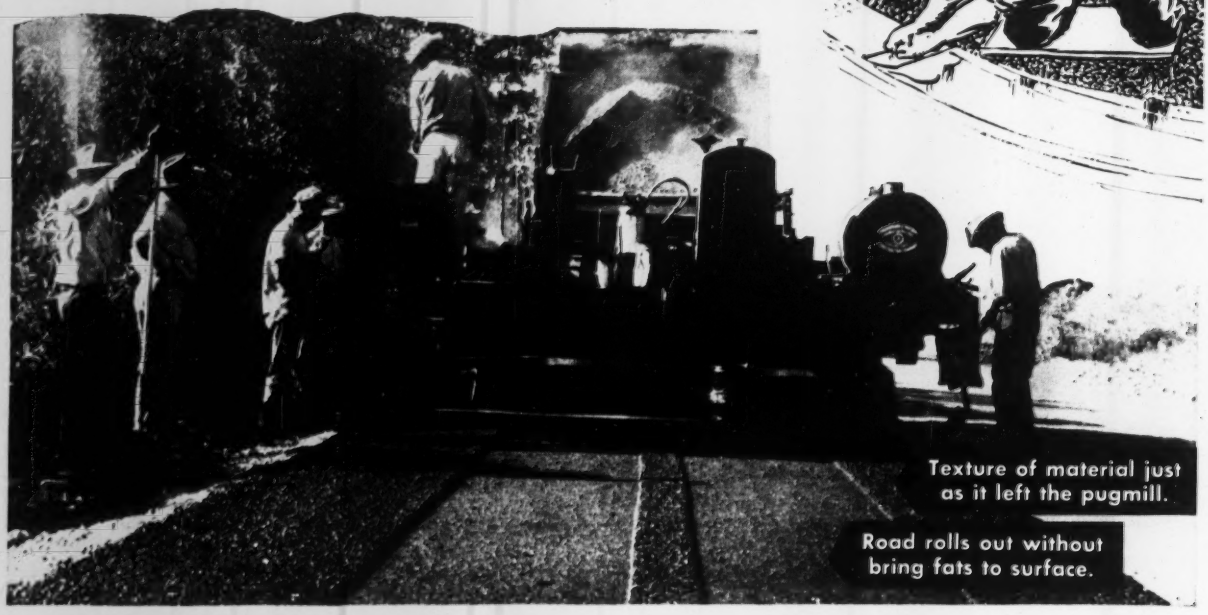
NO TROWELING



—to bring fats to the surface!

EVERYONE has watched a mason trowel concrete and noted how the action brings the water and fats to the surface. This is typical of the movement of a flat blade in surfacing a mix bonded by a liquid.

The Adnun Black Top Paver Oscillating Screed *leaves the texture of the mix just as it was when it left the pugmill.* It does not trowel fats to the surface! Oscillating action kneads the material into place. The travel of the screed gives the mix time to "bed down" naturally, assuring a better keying of the aggregates in the mix. The Adnun Screed *cuts* the material off at the right height. There is no scraping, dragging action to distort the subsurface structure of the mat. There is no increase in fines and there is no screed weight on the mat surface.

Overlapping action makes a tight joint by carrying the material up to and compacting it against the parallel course eliminating the constant hand work of carrying shovel loads back to fill cracks.

To these advantages add the Fluid Level that will assure both absolute uniformity in thickness and vastly improved uniformity in density along with a definite reduction in waste of materials now going into the hollows.

If you haven't seen the little booklet, "Put A Level On Your Roads," ask for it. It has some new thinking on road building.

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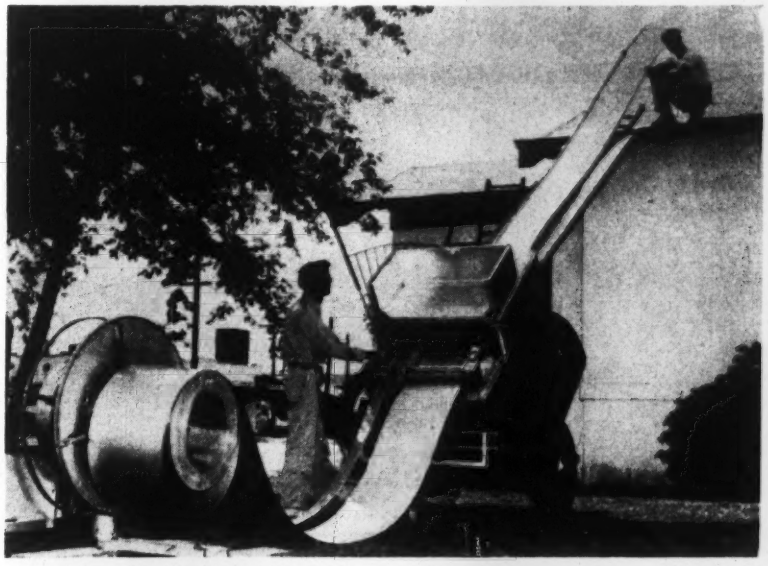


TRAILER MOUNTED forming machine can be tilted to approximate angle of the roof. Pans and battens are formed simultaneously with the same equipment.

From roll to roofing in minutes

A new machine and a special clip are combined now to produce a completely field-fabricated metal roofing

Sheet aluminum from an 800-ft coil fed into a new forming machine can be converted in a matter of minutes to roofing pans and battens—right at the job site.

• **The forming**—Coiled sheet aluminum, 16 in. wide, is inserted into the Roliton machine. The edges of the sheet are turned up and six corrugations are embossed along the length of the bottom of the pan. Simultaneously, aluminum sheet of the same gauge but 3 9/16 in. wide is also fed into the machine and formed into battens. Machine can be preset to cut proper length of pans and battens.

• **Installation**—The forming machine at the job site is tilted to approximately the angle of the roof. As the pans and battens leave the machine they move over a guide rack to the roof where they are set in place 1½ in. apart. The pans run in one continuous piece from eave to ridge to eave.

As the pans are formed and placed they are secured with special clips that fit over the upturned edges of the pan and are nailed in place. Oversized nail holes in the clips permit movement due to expansion or contraction. The seam is capped with a batten snapped over the clips. Aluminum flashing and eave moldings are applied in the conventional manner.

• **The advantages**—Being made entirely of aluminum, the roof produced is fireproof, rustproof and light in weight. Weight factor for this type of roof is only 45 lb per square as compared with 125 lb for copper, 210 lb for shingles and 1,200 lb for tile. Further, the aluminum roof offers a high insulation value—higher, it is said, than any other type.

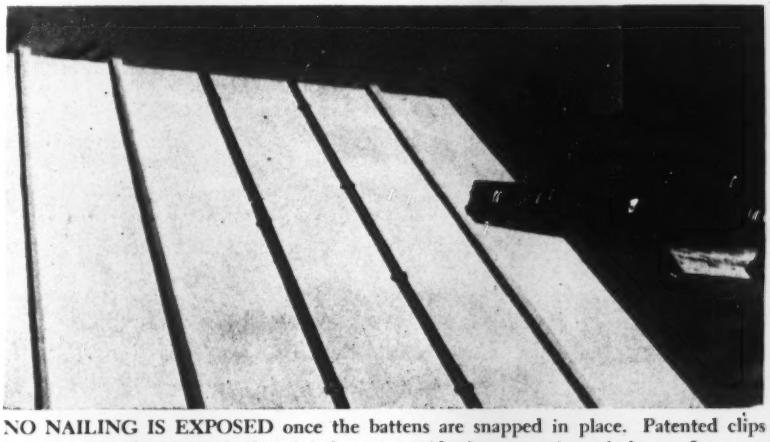
The six corrugations in each pan plus the battened seams provide channels under the roofing to relieve localized pressure build-ups before they occur. These channels also aid in removing moisture that might condense on the underside of the pans.

Speed of installation of the new roofing is adequate but not sensational. It is estimated that a crew of two can re-roof 10 squares in one working day. On a new roof the estimate is boosted to 15 squares per day.

With a guarantee of 100 years on the roof and 20 years on the installation, Roliton claims "one roof in a lifetime" for its technique that can be used on either new construction or to replace old defective roofs.

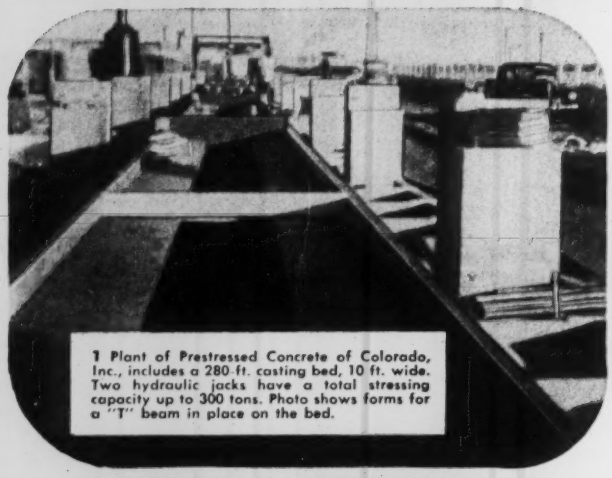
• **Dealerships available**—Phoenix, Ariz. is national headquarters for the licensing and dealership to be allotted on a population basis—a dealership for approximately 250,000 population.

To accept dealers a franchise fee of about $20,000 is established and a royalty payment is made on consummated sales by the dealer. For this the dealer is given an exclusive right to manufacture and sell in his territory all products developed under the Roliton patents. The fee carries with it also the loan of one or more Roliton machines, guidance from the engineering and research staff, instruction to designated persons in the installation of Roliton roofs and the training of a sales crew by the manufacturer's agency. ROLITON OF AMERICA, 714 E. VAN BUREN ST., PHOENIX, ARIZ.

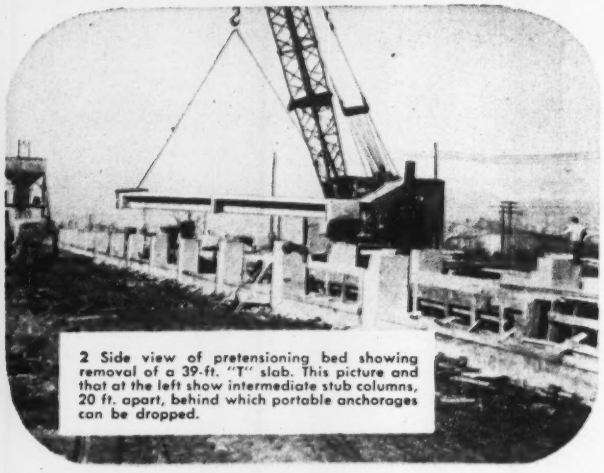


NO NAILING IS EXPOSED once the battens are snapped in place. Patented clips between pans have oversized nail holes to provide for expansion of the roofing.

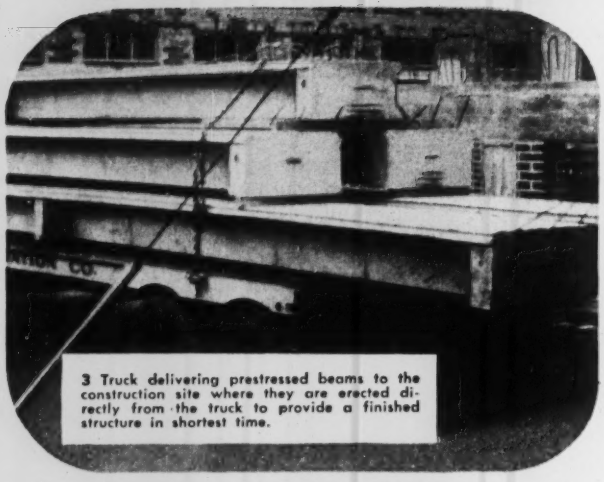
PRESTRESSED CONCRETE



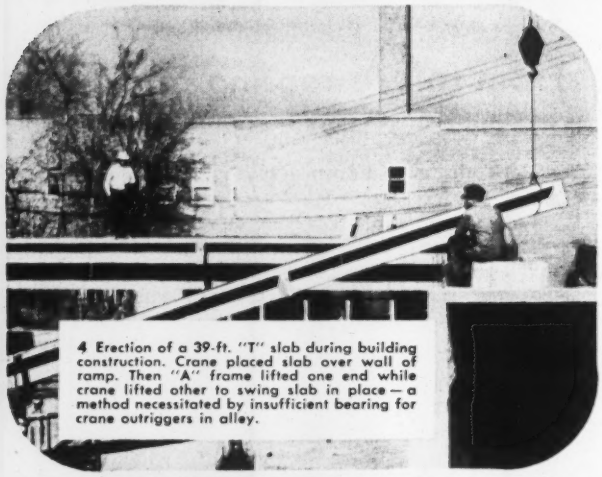
1 Plant of Prestressed Concrete of Colorado, Inc., includes a 280-ft. casting bed, 10 ft. wide. Two hydraulic jacks have a total stressing capacity up to 300 tons. Photo shows forms for a "T" beam in place on the bed.



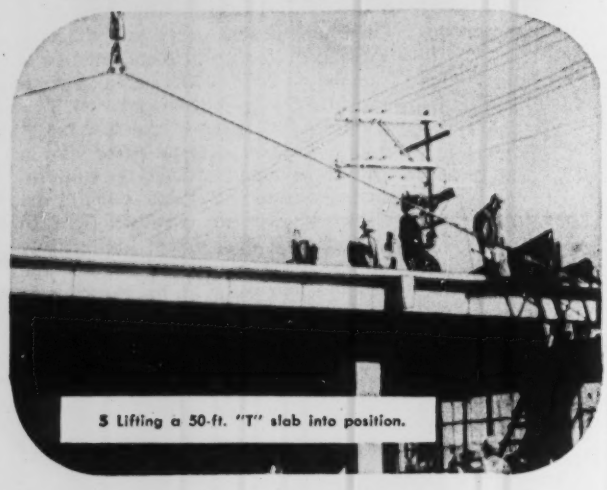
2 Side view of pretensioning bed showing removal of a 39-ft. "T" slab. This picture and that at the left show intermediate stub columns, 20 ft. apart, behind which portable anchorages can be dropped.



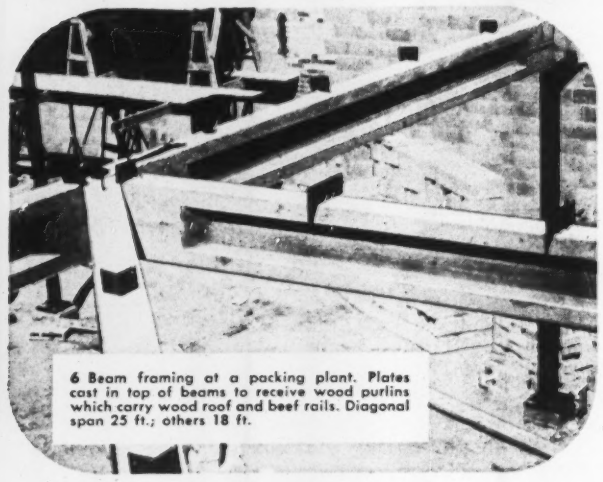
3 Truck delivering prestressed beams to the construction site where they are erected directly from the truck to provide a finished structure in shortest time.



4 Erection of a 39-ft. "T" slab during building construction. Crane placed slab over wall of ramp. Then "A" frame lifted one end while crane lifted other to swing slab in place — a method necessitated by insufficient bearing for crane outriggers in alley.



5 Lifting a 50-ft. "T" slab into position.



6 Beam framing at a packing plant. Plates cast in top of beams to receive wood purlins which carry wood roof and beef rails. Diagonal span 25 ft.; others 18 ft.

PRODUCTION LINE!

Single plant quickly reached daily volume of 1120 ft. of structural members to meet demand

ALMOST UNLIMITED POSSIBILITIES await the fabricator of prestressed concrete structural members. One of the first in this field, Perlmutter & Sons Co., of Denver, built a 48-ft. casting bed as a pilot plant. They cast a wide variety of shapes and sizes and learned the angles. Then, as Prestressed Concrete of Colorado, Inc., they built a 280-ft. casting bed. Completed last October, this plant produced 560 linear ft. of beams, girders, roof and floor slabs daily. By February this was increased to 1120 ft.

By June 1, 1953 Prestressed Concrete of Colorado had supplied 130,347 sq. ft. of 100% prestressed concrete roof plus beams to support an additional 25,700 sq. ft. of wood and lightweight slab.

Both casting beds were designed by Phillips-Carter-Osborn, Inc., of Denver, after consultation with Roebling. Six different architectural firms in the area have employed them to design the prestressed concrete members for many structures including the three illustrated on these pages.

• • •

Roebling has pioneered in adapting the principles of prestressed concrete to American practices. Roebling is a major supplier of strand for pretensioning—in Regular and SR (stress-relieved) grades—and of end fittings and strand for post-tensioning.

Based on its experience in this field, Roebling can furnish data and suggestions on the design and operation of plants for fabricating prestressed concrete structural members. Inquiries will be welcome from everyone interested in building such plants and in capitalizing on the most revolutionary and profitable trend since structural steel came into the picture. Prestressed concrete compares favorably with steel cost-wise, and its unique advantages assure a practically unlimited future.

Architects, engineers and builders are invited to write for the Roebling prestressed concrete story.

Address Prestressed Concrete Dept.
JOHN A. ROEBLING'S SONS CORPORATION
Trenton 2, New Jersey

A subsidiary of The Colorado Fuel and Iron Corporation

7 Placing a double "T" slab during erection of a cold storage plant. Average placement time was three minutes per slab.

8 Same as above. Top view of slabs in place before the lifting hooks were burned off.

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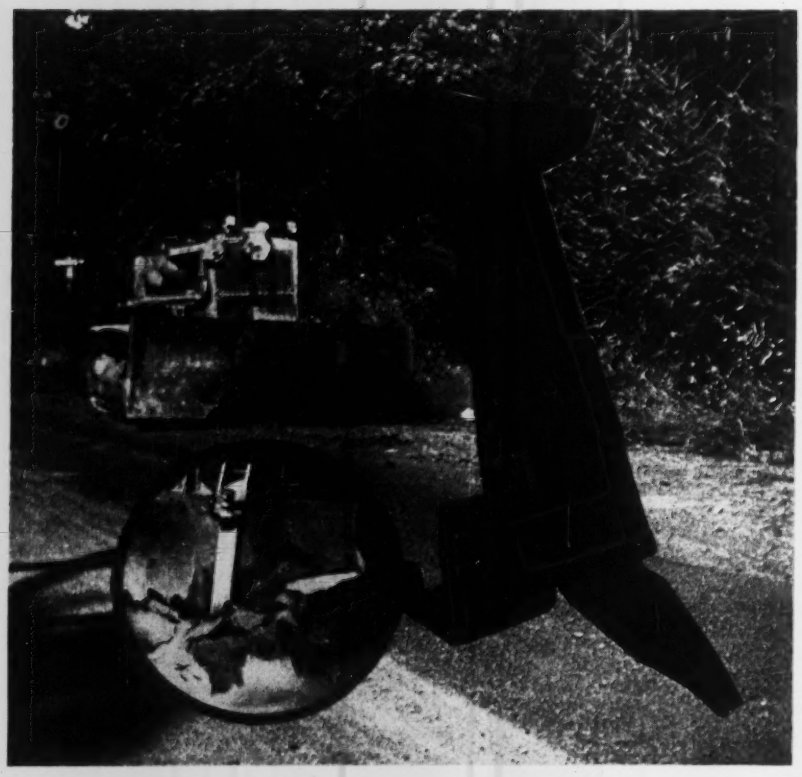

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Glopane cold galvanizing is a viscous fluid composition made up of zinc dust, plastic resin binders and solvents. Brushed or sprayed on, the material is said to provide most of the advantages and none of the difficulties of hot-dip galvanizing.

According to the manufacturers, Glopane gives the same electro-chemical protection as metallic zinc coating. If the coating is scratched through to the base metal an electro-chemical cell is set up in the presence of moisture. The iron or steel is the cathode and is not attacked while the zinc is the anode of the system and is sacrificed in preference to the base metal. Thus, cracks or pinholes in the coating may result in local rusting, but the electro-chemical reaction prevents the spread of rust under the coating.

Used at a coverage of 500 to 600 sq.ft. per gal, the coating contains about two-thirds of an ounce of zinc per square foot of surface covered.

Glopane Wet, a development of the standard type, can be applied to wet iron and steel or even to totally submerged surfaces. CORROSION LTD., 16 GLOUCESTER PLACE, PORTMAN SQ., W. 1, LONDON, ENGLAND.

Steam cleaning machine boasts 150 gph capacity

A new steam cleaning machine is reported capable of discharging 150 gph of cleaning solution.

The new unit is self-contained and offers a graduated range of cleaning pressures extending from 30 psi, for such jobs as paint stripping, to 100 psi for cleaning heavily encrusted or grease-coated parts and surfaces.

The helically wound heating coil is said to provide a guaranteed thermal efficiency of 75 per cent and full working pressure in two minutes from cold start. This fast pressure build-up eliminates the need of keeping the machine in operation on a standby basis.

The variety of models available includes oil or gas-fired, electrically or gasoline engine driven and portable, stationary or trailer models. Each can be optionally equipped with remote nozzle control.

Burner fuel pump is designed for fast priming and a new soap pump is said to eliminate any possibility of air lock in the soap line.

Automatic overheating protection is provided by thermostats that cut off

the fuel supply in the event of excessive pressure or temperatures. CLAYTON MFG. CO., Box 550, EL MONTE, CALIF.

Improved screed beam ups vibration frequency

High frequency vibration up to 9600 vpm on the new Master screed is said to provide uniform compaction over the entire length of a 36-ft screed beam. Test slabs up to 27 in. thick are reported to have been compacted successfully with a new screed powered by a 2½ hp Briggs & Stratton engine.

Raising the screed beam web two inches is said to have resulted in other advantages as well. First, it eliminates the need for the heavy welded box-section on the flange of the beam with resultant lighter weight, especially on the long models—a 36-ft Master screed weighs less than the 26-ft prototype. Second, the increased height is said to improve rigidity to assure more accurate strike-off.

New wheels allow the contractor to roll the screed back for as many passes as desired. With the wheel-locking lever forward the screed beam is placed in operating position on the form. Lever back, the beam is raised and the entire weight rests on the wheels.

The new screed beam is available in 6 to 36-ft lengths. MASTER VIBRATOR CO., 100 DAVIS AVE., DAYTON 3, OHIO.

2-ton grip holds lag screws in plastic anchors

Plastic anchors for use with ⅜, $\frac{7}{16}$ and ½-in. lag screws or corresponding wood screws are reported to show a holding power of two tons in concrete. However, they can be used in any material that will support expansion and can be drilled.

Designed with longitudinal scoring externally and overlapping internal slits, the anchor expands as the screw is turned in. Pressures exerted by this action cause the plastic material to cold flow into the crevices of the drilled hole and assure a good bond between the materials. For fragile and soft materials it is sometimes necessary to use undersized screws to avoid full expansion.

The anchors are made of ethyl cellulose, a plastic material that has good dimensional stability and will withstand moisture, corrosion, shock and extremes of temperature. The anchors are easily cut to the proper length with a knife, saw or side cutters. HOLUB INDUSTRIES, INC., SYCAMORE, ILL.

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Steel provides the most economical and by all odds the safest ground support. Use "Commercial" steel supports, designed and produced by men who have had the greatest experience, are recognized specialists and whose product was used with such outstanding results in tunnels on the Pennsylvania Turnpike.

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★ SCRAPER

¾ cu. yd. Sauerman scraper moves 1½ ton load of crushed ore from stockpile to hopper. The round trip ranges from 200 ft. to 600 ft. and the scoop averages 40 trips an hour.

A SAUERMAN CRESCENT Drag Scraper penetrates any kind of earth material as easily as a plowshare, scoops up a heaping load in a few seconds, moves this load across the ground at a speed of 400 f.p.m., dumps automatically when it reaches the delivery point. It requires less line-pull per ton of capacity than any other drag scraper. Sizes: ½ to 15 cu. yd.

Write for Catalogs A and J—two booklets that give specifications of these scrapers and show them at work.

Sauerman Bros. Inc.

532 S. Clinton St. Chicago 7, Ill.

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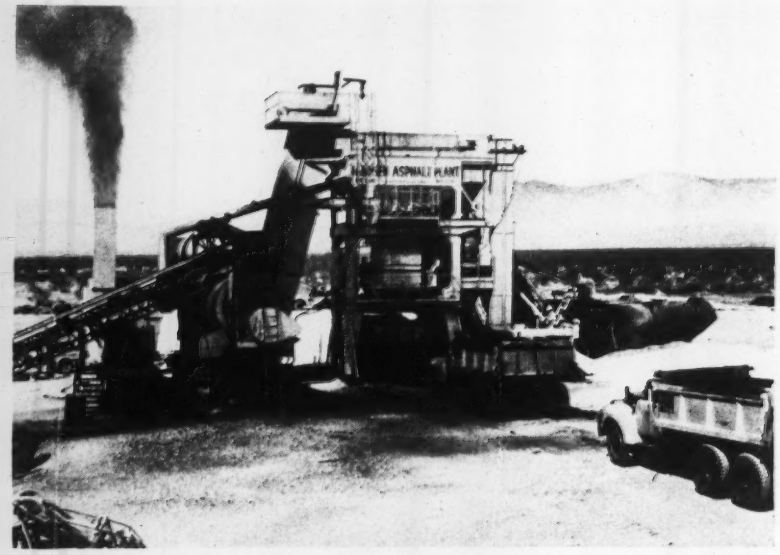
NAILED-DOWN & SLIP-IN PANS

Ask for Catalog No. 3100

GATEWAY ERECTORS, INC.

3233 W. Grand Ave., Chicago 51, Illinois



PLANT can be broken down into road-width units.

Asphalt plant is expandable

Designed with future expansion of capacity in mind the new Madsen Model 481 asphalt plant is built with oversized elevator, screen, bin, weigh-box, mixer and drives. Unmodified, the plant has a capacity of 4,000 lb, but should the buyer wish to increase production facilities at some time after purchase, the capacity may be increased to 5,000 or 6,000 lb.

A new feature of the plant is the method of withdrawing materials from the four-compartment aggregate bin. Each compartment is emptied by three openings—one in the center and one at either edge of the bin bottom. When the single gate that covers the three outlets is opened, the material in the bin is drawn down from the two bin sides and the center. This is said to eliminate "coring out" and segregation, to give a more uniform withdrawal of material and provide greater mixing within the bin. The bin gate is opened by an air-operated cylinder. Bin capacity is 47,800 lb.

The twin-shaft pug mill mixer used with the plant has line sections approximately nine inches wide that are externally installed and externally removable and are ground to width tolerances of 0.001 in. What this means in dollars and cents is easier maintenance and no field grinding to make liner sections fit.

A pressure injection system pumps the asphalt into the pug mill in five to seven seconds.

Drives may be all electric or combination diesel and electric. When the combination drive is used, the mixer is driven by diesel.

All units are within legal road widths and may be transported by semitrailer. Gooseneck construction has been built into the largest two units, the screen bin unit and the mixer weigh box, for transport on their own tires. MADSEN IRON WORKS, P.O. Box 589, HUNTINGDON PARK, CALIF.

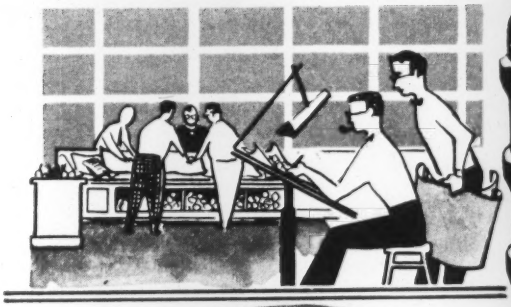
New fire extinguisher hits the hot spots

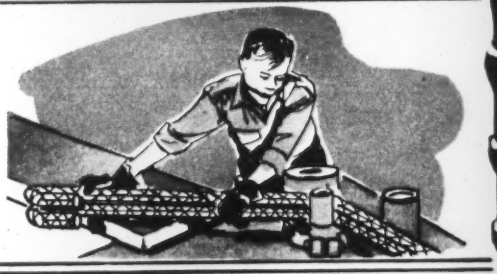
Aimed like a gun, a new lightweight fire extinguisher is said to hit the fire target accurately with no unnecessary loss of liquid. Further, the trigger can be worked by operators wearing heavy work gloves or mittens.

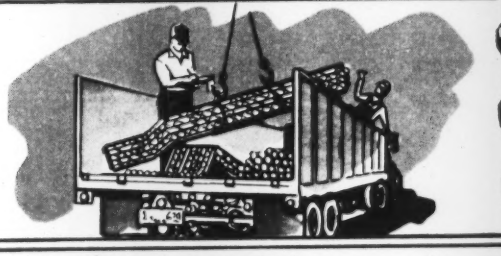
The new Alfco Model PCB-1 is a stored pressure unit charged with bromochlormethane, more commonly known as CB liquid. CB is a vaporizing liquid agent that has been proven effective on electrical and inflammable liquid fires. This same CB is used by the Air Force for aircraft fire extinguishing systems.

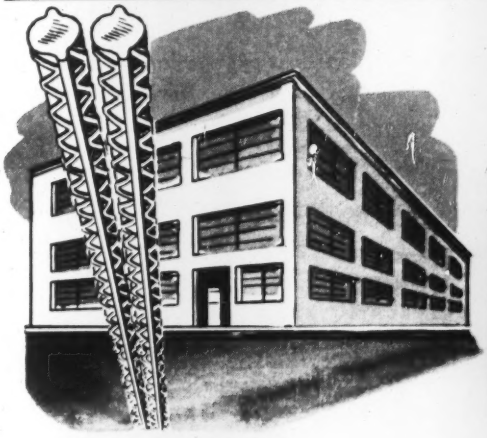
According to the manufacturer, the extinguisher will not freeze in temperatures above —65 F. and will discharge 95 per cent of its contents in any position from vertical to 15 deg from horizontal. AMERICAN-LA FRANCE-FOAMITE CORP., 100 E. LA-FRANCE ST., ELMIRA, N. Y.

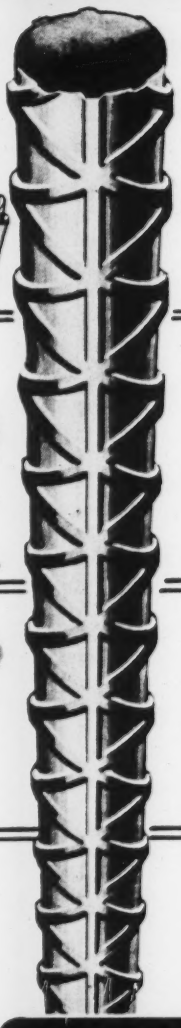
CONNORS Bars Fit The Job— And Save You Construction Time











DETAILING

Connors' service includes placing drawings, when needed, prepared by experienced engineers—a time saver to the builder.

FABRICATION

Bars arrive at the job cut to proper length and bent to fit job requirements. Each bar is metal tagged for easy identification.

QUICK DELIVERY

Connors, located in the heart of the South's steel industry, gives you quick delivery. Accessibility of truck and rail facilities insure dependable service.

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Concrete Reinforcing Bars
Hot Rolled Strip
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Special Sections

CONNORS STEEL DIVISION
H. K. PORTER COMPANY, INC.
OF PITTSBURGH
P. O. BOX 2562 • BIRMINGHAM, ALA.

"Euc" lever-type Scrapers

Pay off in Performance

Getting a heaped load of 21 cu. yds. at Jemez Dam in New Mexico.

- 15.5 cu. yds. struck
- 275 h.p. engine
- 10-speed transmission
- Interchangeable hydraulic jacks
- 4-section reversible and interchangeable cutting blades
- Lever actuated bowl, apron & ejector—only 13 ft. of cable

Lever action, an exclusive Euclid Scraper development, offers many profit-making advantages that you can't get in any other scraper. It is the most important advancement in scraper design and performance in many years!

Just think of it—no cables to break because bowl and apron lift and the positive roll-out ejector are actuated by interchangeable hydraulic jacks. Only 13 feet of long-life cable, part of the apron lift, are used. There's no danger of a broken cable causing damage or delay—ever, and especially on high speed hauls. There's no costly cable replacement and lost time threading cable through dozens of sheaves and pulleys. And most important of all is the top performance and high job availability—the low cost production—you can count on with "Eucs" on your job.

Get the complete story from your Euclid distributor and check all of the features that mean more loads and bigger payloads per hour at lower cost. Just ask for your copy of Form B502.

The EUCLID ROAD MACHINERY Co., CLEVELAND 17, OHIO

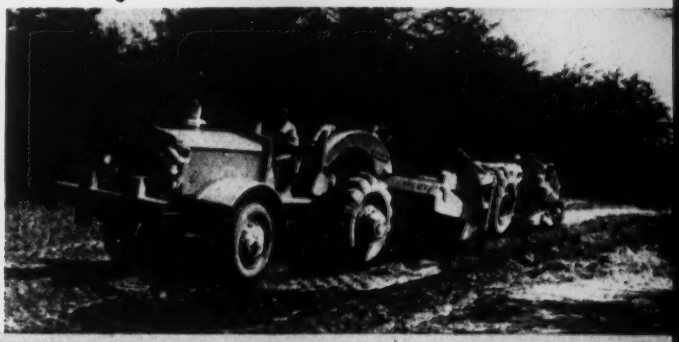
Cable address: YUKLID **Code: BENTLEY**

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

"Eucs" are turning in top performance records on all kinds of jobs . . . *everywhere!*

At Bellingham, Washington, 3 Euclid lever-type Scrapers are being used by Morrison-Knudsen Co., Inc. for grading a refinery location. Adjustable 4-section cutting blades provide fast, efficient loading in any type of material. These hard-faced blades are reversible and interchangeable.

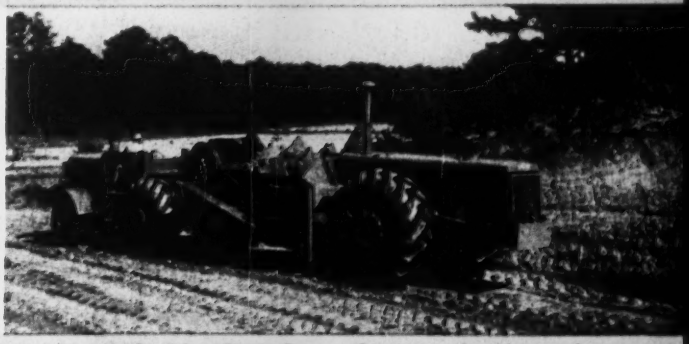


For smaller earth moving jobs, such as this farm-to-market road in Southern Virginia, the 12 cu. yd. (struck) "Euc" Scraper is a versatile, low-cost dirt mover. Like larger Euclid scrapers, bowl, apron and ejector operations are lever actuated—no down time due to cable breakage!

Working in wet, heavy clay overburden the "Euc" lever-type Scrapers at this Ohio quarry had "hardly any down time" according to the contractor . . . they worked efficiently during wet weather and on steep grades where single axle tractor scrapers had to be parked because they simply couldn't "make the grade." Powered by a 275 h.p. engine, with a 10-speed transmission, the Euclid Scraper takes tough jobs in stride.

As a result of competitive demonstration with several other scrapers, Skousen-Hise Contracting Co. bought "Eucs" for their road job east of Albuquerque, New Mexico. Faster average travel speed, due to better safety and stability of the 4-wheel tractor and from 5 to 20 seconds faster loading, were important factors in the Euclid out-performing its closest competitor by more than 17%.

By actual scale weight "Eucs" carry up to 20% more payload than other scrapers of comparable size because of their good load compaction. At Whittier Narrows Dam in California top extensions enabled the Euclid Scrapers to get heaped loads—over 20 cu. yds.—of sand. Contractors on the project are A. Teichert & Sons, Inc. and Bressi & Bevanda Constructors.



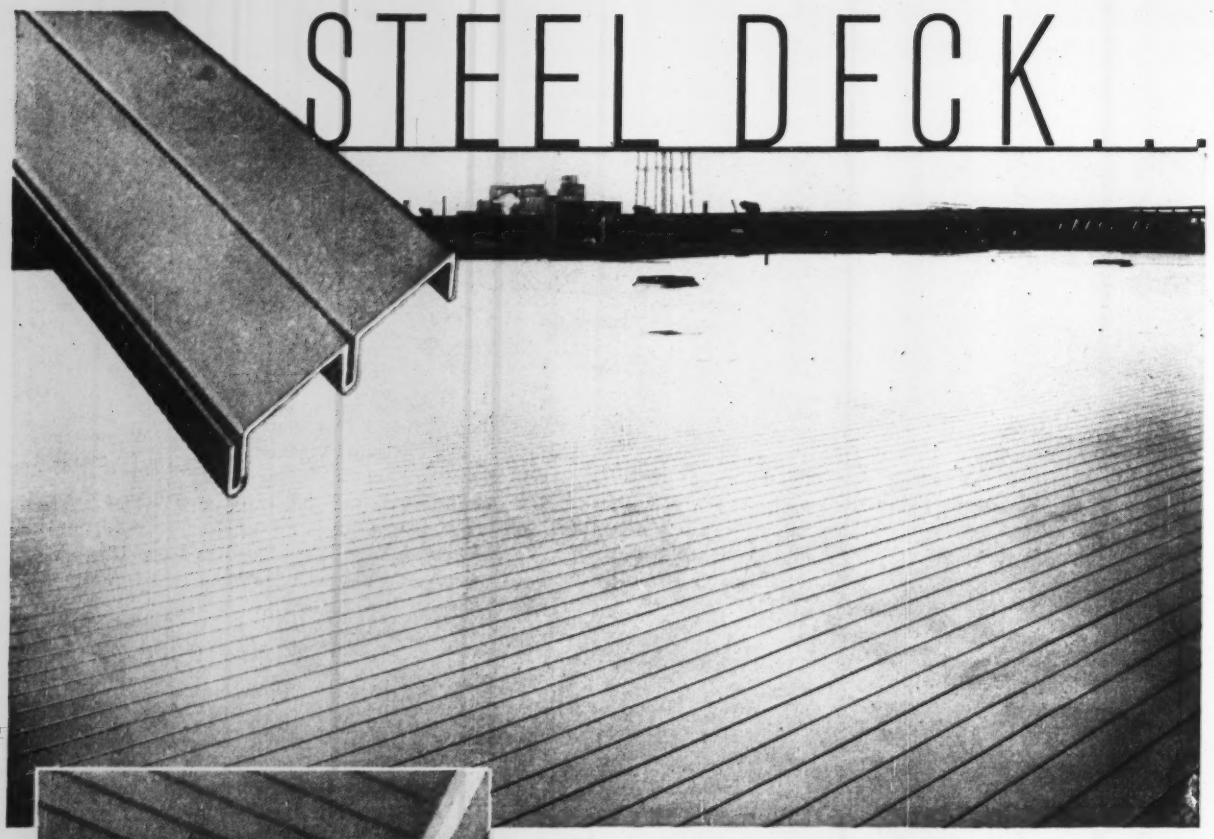
Only Euclid builds a Twin Power Scraper—the scraper that has its own pusher! Two 190 or 200 h.p. engines with torque converters and torqmatic transmissions make the "Twin" a one-man earth moving crew . . . heaped capacity at 1:1 slope is 24 cu. yds. On this road project in Alabama the maneuverability of the Euclid permitted turns in cuts only 40 feet wide.

***WRITE TODAY** for performance data and a copy of the new catalog folder on Euclid lever-type Scrapers*

The EUCLID ROAD MACHINERY Co., Cleveland 17, Ohio

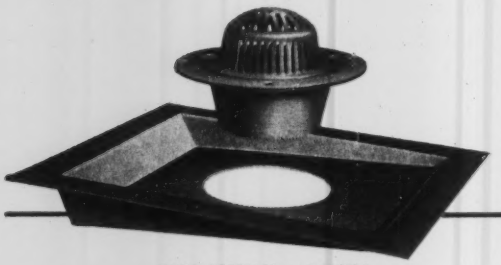
EUCLID SPECIALIZED EQUIPMENT FOR MORE LOADS PER HOUR AT MORE PROFIT PER LOAD

STEEL DECK . . .



BUILT-UP SADDLES ELIMINATED

Built-up saddles are eliminated in Steel Deck Roofs. Purlins can be set to create valleys at sump locations in the drainage area. Steel Deck can be warped to conform. No additional deck plates are required—no cutting, fitting or bending necessary.



SUMP RECESSES and SUMPS

Mahon Roof Sump Recesses for use with Mahon Steel Deck can be furnished to fit any roof pitch. Mahon Cast Iron Sumps can also be furnished for 4", 5", and 6" conductors.

1,000,000 Sq. Ft. of Mahon Steel Deck Protects Another Industrial Plant!

Steel Deck continues to gain in preference for roof construction in modern industrial and commercial buildings throughout the country. There are three good reasons for this growing preference. One: the speed with which it can be erected. Two: its light weight, which permits savings in the supporting structure. And, three: Steel Deck is the most economical, permanent, firesafe roof material available today . . . the fact that it can be insulated to any degree, to produce specific thermal properties for any temperature range, reduces total roof cost per sq. ft. to an absolute minimum in any given locality. Mahon Steel Deck is available in Galvanized Steel, Galvanized Enamel Coated Steel, or Enamel Coated Black Steel. Stiffening ribs are vertical—no angular or horizontal surfaces where troublesome dust may accumulate. In the enamel coating process, the metal is chemically cleaned, phosphated, and treated with a chromic acid solution to provide paint bond, and the protective coating of synthetic enamel is baked on at 350° F. prior to roll-forming. These extra value Mahon features warrant your consideration. See Sweet's Files for complete information, or write for Catalog B-53-A.

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PUBLICATIONS

Bulldozers—A new catalog shows the 15 models of cable and hydraulic dozers and 3 models of control units available for Allis-Chalmers tractors. The booklet is extensively illustrated with cutaways, engineering drawings, detailed and on-the-job photographs. Form No. F-165, CUSTOMER SERVICE DEPT., GAR WOOD INDUSTRIES, INC., WAYNE, MICHIGAN.

Fly Ash—A new booklet contains information on the practice of incorporating fly ash in concrete in the proportion of 15% to 35% by weight of total cementing material. Included are a brief history of the use of fly ash, a description of the modern process and technical data and results of tests. CHICAGO FLY ASH COMPANY, 228 NORTH LA SALLE STREET, CHICAGO 1, ILLINOIS.

Roller chain and sprockets—A new 54 page bulletin describes the advantages of roller chain and illustrates all the popular sizes of Baldwin-Rex roller chain. A section of the bulletin is a treatise on how to select standard roller chain drives. Included are formulas, tables and examples illustrating this procedure. Bulletin No. 52-1. BALDWIN-DUCKWORTH CHAIN BELT COMPANY, DEPARTMENT P. R., SPRINGFIELD 2, MASSACHUSETTS.

Survey chart on enamels—A check chart on analysis of the use of enamel and when to apply it in production and maintenance is available from THE WILBUR & WILLIAMS COMPANY, 130 LINCOLN STREET, BOSTON 35, (BRIGHTON), MASSACHUSETTS.

Hangar construction—"Standardized Hangars by Luria" is the title of a new illustrated catalog on structures for civil and military aircraft. The catalog contains descriptions, photographs, cross-sectional drawings and specifications of various types of standardized hangars, lean-to's and clear-span service buildings. LURIA ENGINEERING COMPANY, 500 FIFTH AVENUE, NEW YORK 36, NEW YORK.

Swimming pools—A new bulletin illustrates many indoor and outdoor pools and their equipment, describes modern filtering and recirculating equipment and accessories, and includes typical drawings, dimensions and capacity tables for standard pools. Write for Bulletin WC-109. DEPARTMENT 76-9, GRAVER WATER CONDITIONING COMPANY, 216 WEST 14TH STREET, NEW YORK 11, N. Y.

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EDITORIALS

St. Lawrence Power

DEVELOPMENT of the power resources of the international section of the St. Lawrence River appears assured after many years of planning. And in voting to issue a license for the development to the Power Authority of the State of New York, the Federal Power Commission has acted wisely and in the manner best calculated to assure progress toward early construction. The only cloud on the horizon is a threat of legal action to block issuance of the license. But as that threat has been made by a private corporation whose application for a license to develop the same power was carefully considered by the FPC before being rejected, it hardly appears possible that a federal court will act favorably on a stay. Beyond that, the New York Power Authority will have clear sailing to talk financing plans with bankers. And then while financing is being prepared the engineering plans made by the Army Engineers some years ago can be brought up to date. It is an encouraging prospect for a project that has had a long and eventful history.

Initial planning for development of this St. Lawrence power may be said to have started in 1895 when the Deep Waterways Commission was appointed to make plans for a new ship canal in the St. Lawrence River. But serious study of power development at the International Rapids did not start until after World War I when the International Joint Commission was instructed by the governments of the United States and Canada to develop new plans for a ship canal and for power.

Thus, over thirty years have elapsed since the first definite plan for developing this power was issued in 1921. Then, development of over two million horsepower at one site was unprecedented. Now that figure has been exceeded by the power installation at Grand Coulee, and well over a million horsepower has been installed at Hoover Dam and at the Beauharnois plant farther down the St. Lawrence.

But from the construction man's viewpoint, building the dams that are required for the proposed development still stands as an unprecedented undertaking because of the amount of water to be handled—an average flow of 237,000 cubic feet per second. Ice also will add to the contractor's problems.

When actual construction can start is anyone's guess. Robert Saunders, chairman of the Hydro-Electric Power Commission of Ontario, optimistically predicts a start this year, but engineers for the New York Power Authority are more conservative. They note that the Power Authority must start almost from scratch. All it has is a set of plans that must be updated and possibly revised. It has little money and no established reputation in the banking world, as has Ontario Hydro.

Meanwhile, Congress might surprise everyone and pass the Wiley Bill authorizing a start on the seaway. That would add to the amount of work to be done in the International Rapids and probably would bring the Army Engineers into the construction picture. Still, approval of the seaway should have little effect on the start of work on the power dams where principal features remain the same whether no seaway is built or whether it is located on the New York or Ontario side.

All things considered, 1954 should see some work started on the power development. It might also see construction started on a modern ship canal.

Prospects for nuclear power brighten

A REPORT that the breeder reactor with which the Atomic Energy Commission has been experimenting works successfully gives added encouragement to the belief that nuclear power-plant construction will someday be a new and interesting field of activity for engineers and contractors.

As will be recalled, several large companies have offered to build and operate nuclear power plants. But in deciding to enter that field they had to make several assumptions. These included relaxation of present governmental restrictions, adequate technical knowledge, a low enough cost for the fuel to make such an enterprise profitable, and enough fissionable material to permit the plants to be operated through the period of time normally required to amortize construction costs.

That this last—and most fundamental—assumption is true was not known until last month. Then, Gordon Dean, chairman of the AEC, announced the first experimental verification of the nuclear breeding principle.

Breeding is the manufacture of more fissionable material in a nuclear reactor than is consumed while producing power. If this process were not to work, then the ability to produce nuclear energy would cease with exhaustion of the supply of fissionable material.

Only about 0.7% of chemically purified uranium is fissionable. Breeding, however, makes possible the conversion of all uranium into a fissionable material. It also can do the same with thorium. As a result, the proven reserves of present nuclear fuels are now estimated to constitute an energy potential about 25 times as great as all the known reserves of coal, petroleum and natural gas.

Many problems still remain to be solved before production of nuclear power becomes economically feasible. But at least the question of whether the potential fuel supply will be adequate can now be answered satisfactorily. It brings nearer the day when nuclear power plants will be added to those burning coal and oil and those utilizing falling water as structures that the construction industry is called upon to build.

. . . the finest structures rest on

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Timken multi-use bits are often the most economical for drilling in ordinary ground. With correct and controlled reconditioning, they give lowest cost per foot of hole when full increments of steel can be drilled.

In hard, abrasive ground, Timken carbide insert bits are your best bet. They give highest drilling speed, are most economical for extremely deep holes, constant gage holes, small diameter blast holes.

With Timken carbide insert and multi-use bits, you save on drill steels, too! As many as 93 different sizes of Timken bits in the same thread series fit the same drill steel. And both Timken carbide insert and multi-use bits are made from electric furnace Timken fine alloy steel, have the shoulder union developed by Timken that protects threads from drilling impact.

To find out which bit type is best for your job—whether multi-use, carbide insert, or both—call on the Timken Rock Bit Engineering Service. Twenty years of experience have made the Timken Company the leader in the field. Write The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".

Timken threaded multi-use rock bit

Timken threaded carbide insert rock bit

your best bet for the best bit . . . for <u>every</u> job

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